



**Operator's
Manual**

**John Deere
148 and 158
Farm Loaders**

**OM-W/21348
Issue 13**





To the Purchaser

This new loader was carefully designed and manufactured to give years of dependable service. To keep it operating effectively, read the instructions in this operator's manual.

Each section is clearly identified so you can easily find the information you need—whether it is operation, lubrication, or service. Read the Table of Contents to learn where each section is located.

In addition to the equipment furnished with your loader, extra equipment is available to help you do a better job under most conditions. These are described in the extra equipment section of this manual and can be purchased from your John Deere dealer.

"Right-hand" and "left-hand" sides are determined by facing in the direction of forward travel.

Record your loader serial number in the space provided on page 35. Your dealer needs this information to give you prompt, efficient service when you order parts or attachments. If your loader requires replacement parts, go to your John Deere dealer where you can obtain Genuine John Deere parts—accept no substitutes.

The warranty on this loader appears on your copy of the purchase order which you should have received from your dealer when you purchased the loader.



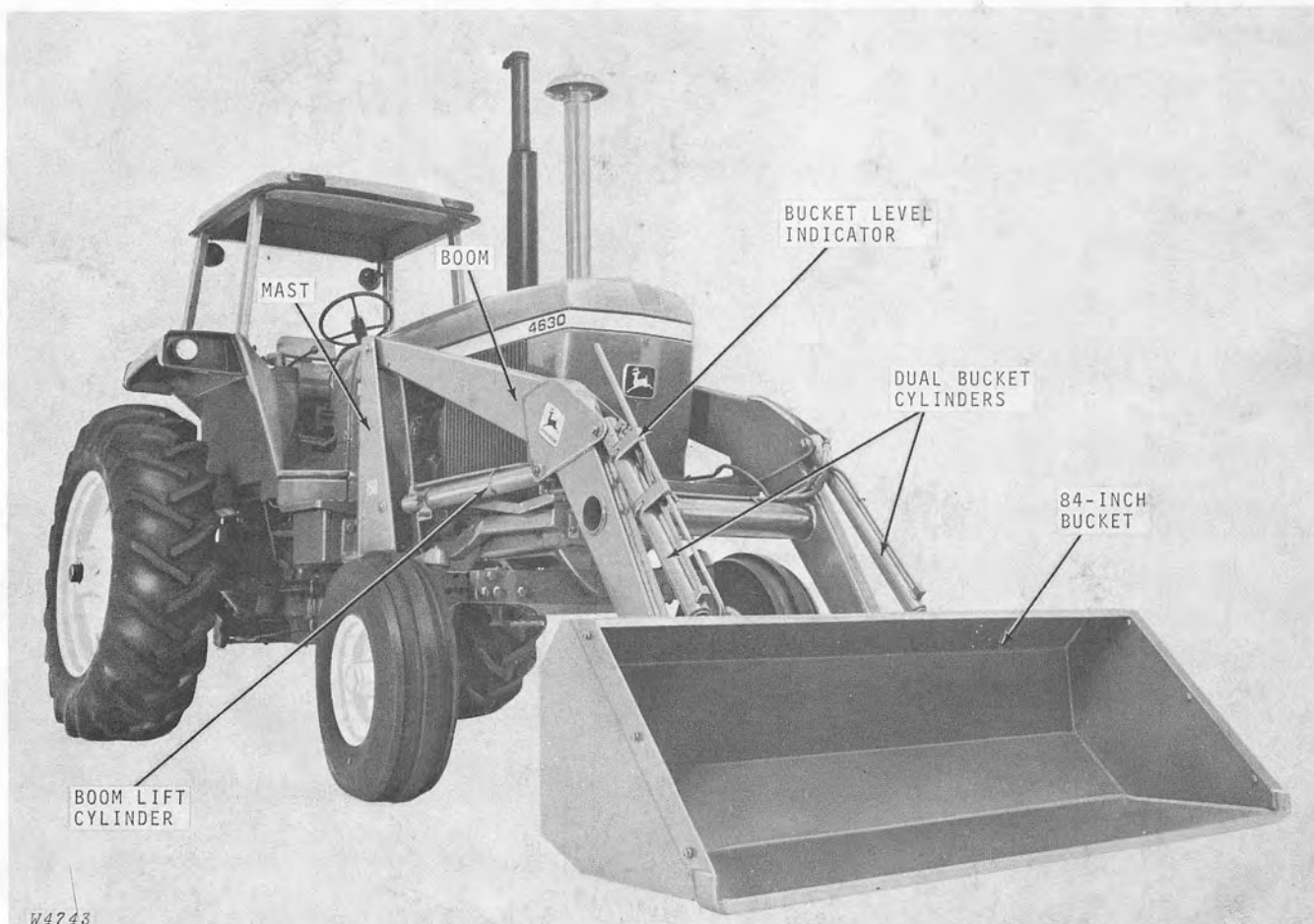
This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.





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John Deere 158 Farm Loader Mounted on a John Deere 4630 Tractor



Operation

GENERAL

The John Deere 148 and 158 Farm Loaders have been designed for use with the following John Deere tractors:

148 - 2520, 3020, 4000, 4020, 4030, 4230, 4320 and 4430

158 - 4000, 4020, 4230, 4320, 4430, 4520, 4620 and 4630

To operate the loader, the tractor must be equipped with either dual remote cylinder selective control valve or an independent control valve. Two independent control valves are available: one for 4030, 4230, 4430, and 4630 Tractors with Sound-Gard Body or Four Post Roll-Gard; and one for 2520, 3020, 4000, 4020, 4320, 4520, and 4620 Tractors without cabs.

All buckets used with the loaders are hydraulically controlled.

PREPARING AND OPERATING THE TRACTOR

Front Wheels

Loaders may be used on row-crop tractors with adjustable tread front axles or standard tractors with adjustable or fixed-tread front axles.

IMPORTANT: When used on tractors with adjustable front axles, adjust the front axles to a setting 10-inches greater than the minimum tread setting.

Front Tires

Use heavy-duty front tires regardless of front wheel equipment used.

Certain tractors require special front wheel equipment. See page 3.

Loaders are not recommended for use on tricycle tractors.

Tire Inflation

Inflate the front tires to proper pressures for heavy front-mounted equipment as recommended in your tractor operator's manual.

Rear Wheel Weighting

To maintain stability and provide adequate traction, add weight to the rear wheels as shown in the ballast chart on page 3. Cast-iron weights, water and calcium chloride solution, or a combination of the two may be used to obtain the proper ballast. See your tractor operator's manual.

Adjustment for Float Position

On newer John Deere tractors, the selective control valve may be adjusted for "float" or "no-float" setting. See adjustment instructions on pages 6 and 7.

Checking Oil Level

Before checking the oil level in the tractor hydraulic system, extend and retract boom and bucket cylinders several times. Return the boom to the ground, stop the tractor engine, and check the oil supply. If oil level is low, add oil as instructed in the tractor operator's manual.

Check oil level daily.

Engine Speed

When operating the loader under average conditions, drive the tractor at reduced throttle in third gear or equivalent speed range.

TIRE RECOMMENDATIONS

Use the chart below to insure that the proper tires are used for various tractor loader combinations.

Tractor	148	Tractor	148	158
2520	11L x 15 6 PR		4320	10.00 x 16 PR 11.00 x 16 8 PR *11.2 x 24 6 PR *12.4 x 24 6 PR *12.4 x 24 6 PR
3020	11L x 15 6 PR *11.2 x 24 6 PR *12.4 x 24 6 PR		4430	10.00 x 16 6 PR 11.00 x 16 8 PR *11.2 x 24 6 PR *12.4 x 24 6 PR *12.4 x 24 6 PR
4030	11L x 15 6 PR			
4000	10.00 x 16 6 PR 11.00 x 16 8 PR 11.00 x 16 8 PR 11L x 15 8 PR		4620	9.50 x 20 8 PR 11.00 x 16 8 PR 14L x 16 6 PR *12.4 x 24 6 PR
4020	10.00 x 16 6 PR 11.00 x 16 8 PR 11.00 x 16 8 PR *12.4 x 24 6 PR 11L x 16 6 PR *11.2 x 24 6 PR *12.4 x 24 6 PR		4630	9.50 x 20 8 PR 11.00 x 16 8 PR 14L x 16 6 PR *12.4 x 24 6 PR
4230	10.00 x 16 6 PR 11.00 x 16 8 PR 11.00 x 16 8 PR *12.4 x 24 8 PR 11L x 16 6 PR *11.2 x 24 6 PR *12.4 x 24 6 PR			

*Tractor is equipped with power front-wheel drive.

REAR BALLAST

(See tractor operator's manual for ballasting instructions)

Tractor	Front End Equipment	Lbs. of Ballast Per Rear Wheel, 80-inch Tread Setting. If minimum rear tread is necessary, add 700 additional lbs. per wheel.
2520 Row Crop	Adjustable Tread	400
3020 Row Crop	Adjustable Tread	200
3020 Standard-long wheelbase	Fixed or Adjustable Tread	200
3020 Standard-short wheelbase	Fixed or Adjustable Tread	700
4000 Row Crop	Adjustable Tread	200
4020 Row Crop	Adjustable Tread	0
4020 Standard-long wheelbase	Fixed or Adjustable	0
4020 Standard-short wheelbase	Fixed or Adjustable	500
4030 Row Crop	Adjustable Tread	0
4030 Standard-long wheelbase	Fixed or Adjustable Tread	0
4030 Standard-short wheelbase	Fixed or Adjustable Tread	0
4230 All models	0
4430 All models	0
4620 All models	0
4630 All models	0

NOTE: The amount of ballast recommended above is intended to help maintain stability and provide adequate traction during normal loader operation with materials-handling and manure buckets. Additional ballast up to maximum tire carrying capacity, should be added, if necessary, when operating tractor and loader on uneven terrain, when operating loader with grapple fork or haystacker attachment, or to improve traction.

Lever Stop For Independent Control Valve

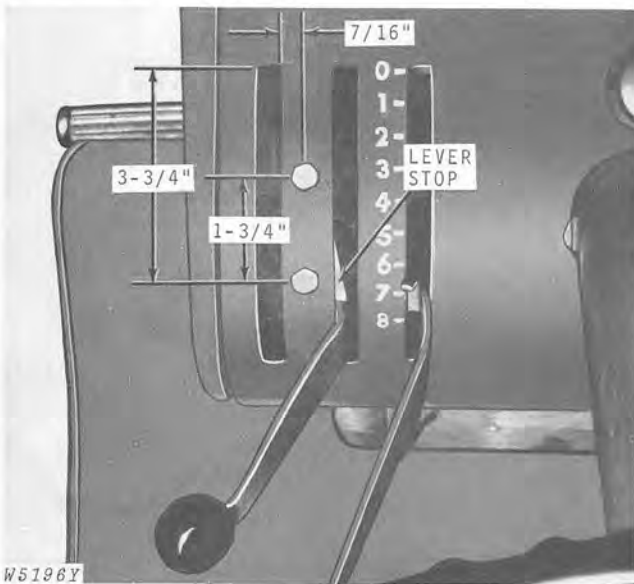
When the independent control valve is used, a lever stop is required to hold the tractor selective control lever in an operating position.

If the lever is not held in the operating position, oil will not be supplied to the independent valve for loader operation.

NOTE: The lever stop must be removed when the tractor is used with other implements requiring regular detent action. The spring locking pin used as a stop on later model tractors may be turned out of operating position.

Use the following procedure to install the lever stop.

3020 and 4020 Tractors (Selective control valve operating levers on dash)



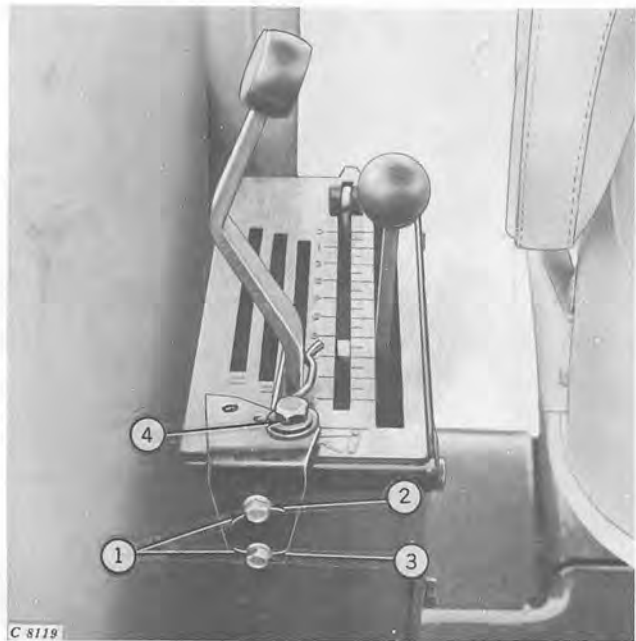
Drill two 1/4 inch diameter holes in the tractor dash according to the dimensions given above.

Remove the tractor cowl. Attach stop with two 1/4 x 1/2-inch cap screws, lock washers, and nuts. Replace tractor cowl.

Operate the lever to be sure the stop retains the lever in operating position, and that the lever can be moved past the stop when desired.

Order stop A15664 through your John Deere dealer.

3020, 4000, 4020, 4320, 4520, and 4620 Tractors (Selective control valve operating levers to right of tractor seat)



1. Place bracket over the front edge of control panel housing with approximately 1/8 inch clearance between bracket and top of control panel. Position bracket so adjusting holes on top side of bracket are aligned with operating levers and mark location for drilling holes. Drill two 7/32 inch holes in housing front.

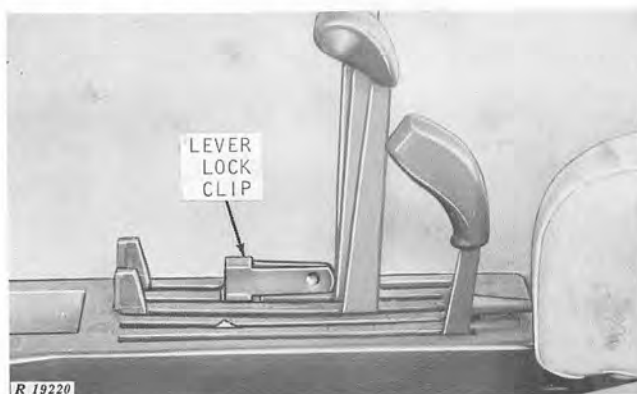
2. Place 1/16 inch thick washer between housing front and bracket. Attach bracket with 1/4 x 5/8-inch self tapping screw.

3. Attach 1/4 x 5/8-inch self-tapping screw to lower hole.

4. Attach spring locking pin 28316 to bracket with 5/16 x 1/2-inch cap screw and washer.

Order bracket A16651 through your John Deere dealer.

4030, 4230, 4430 and 4630 Tractors



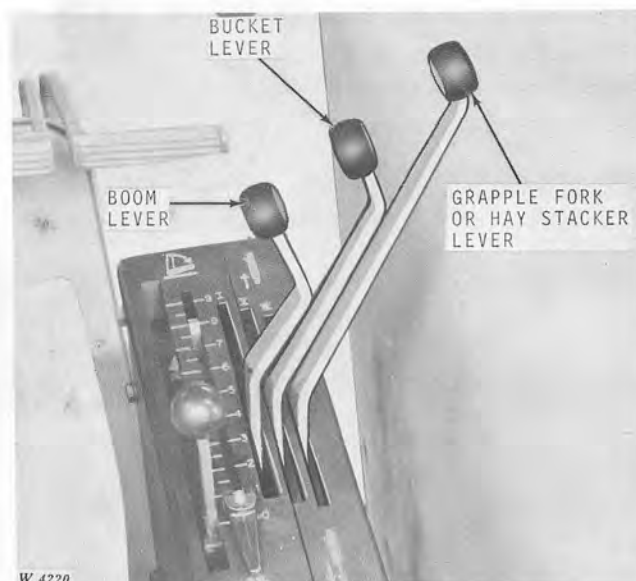
Squeeze clip together slightly and insert in the quadrant slot just behind the float lockout stop. Raise the stop slightly and slide the clip forward into position. Push the stop down to lock the clip in place. To remove the clip, raise the float lockout stop and slide the clip rearward.

LOADER CONTROLS

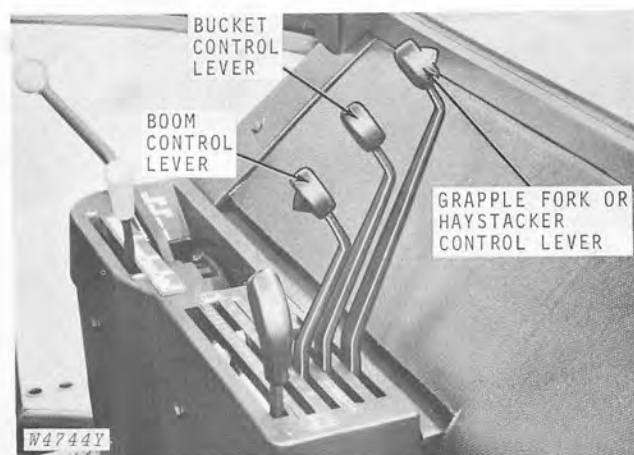
Loader Using Tractor Selective Control Valve



3020 and 4020 Tractors (Operating levers on dash)



3020, 4000, 4020, 4320, 4520, and 4620 Tractors
(Operating levers to the right of tractor seat)



4030, 4230, 4430, and 4630 Tractors

CAUTION: Never operate the loader except from tractor seat. Before operating, be sure no one is near the loader.

Boom

The boom control lever has six operating positions.

Neutral - Neutral is the center position. The neutral position prevents movement of the boom.

Slow raise - Move the lever slightly rearward from neutral. The lever must be held in this position until the desired height of bucket is reached.

Fast raise - Move the lever rearward to the first lock position. The lever will remain in this position until the boom reaches the extreme raised position, at which time the lever will return to neutral. The loader will remain in the raised position.

6 Operation

Slow descent - Move the lever slightly forward from neutral. The lever must be held in this position until the boom has lowered to desired level.

Fast descent - Move the lever all the way forward. The lever will remain in this position until it is manually disengaged or the cylinder rods are fully retracted, at which time the lever will automatically return to neutral.

Float - This position may be used to secure "ground-hugging" bucket action when digging at the extreme bottom of a pile. It is also useful for leveling or cleaning feed yards.

NOTE: Adjust the **BOOM** lever for float position when using manure fork or materials bucket. Adjust the **BUCKET** for float when using a haystacker.

With the lever mounted on the dash, move the lever all the way rearward.

With the lever mounted to the right of the tractor seat, move the lever all the way forward.

It is necessary to make adjustments for "float" setting. Refer to your tractor operator's manual for these adjustments.

Bucket

Move the lever forward to dump the bucket and rearward to roll back the bucket. Intermediate positions of the lever can be used to control slow and fast operation of the bucket in the same way as for the boom. The lever must be held in intermediate positions, but it will remain in extreme forward or rearward position until it is manually disengaged or the cylinder rod is fully extended or retracted.

Grapple Fork or Haystacker

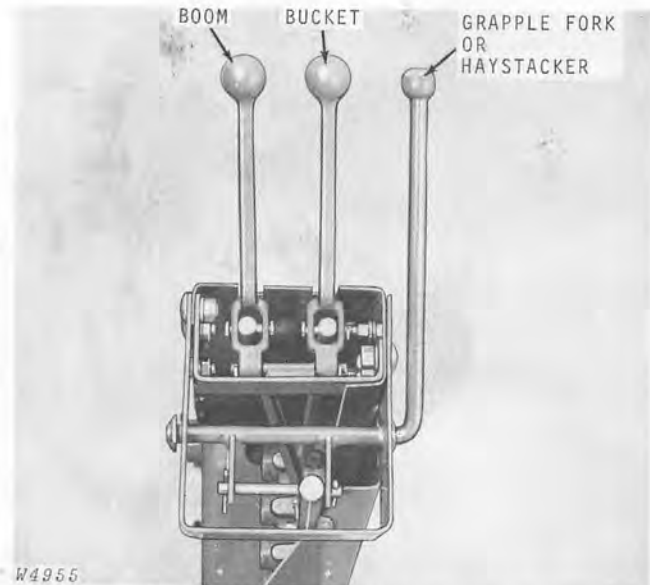
Move the lever forward to push off hay or close the grapple fork.

Intermediate positions of the operating lever can be used to control slow and fast operations.

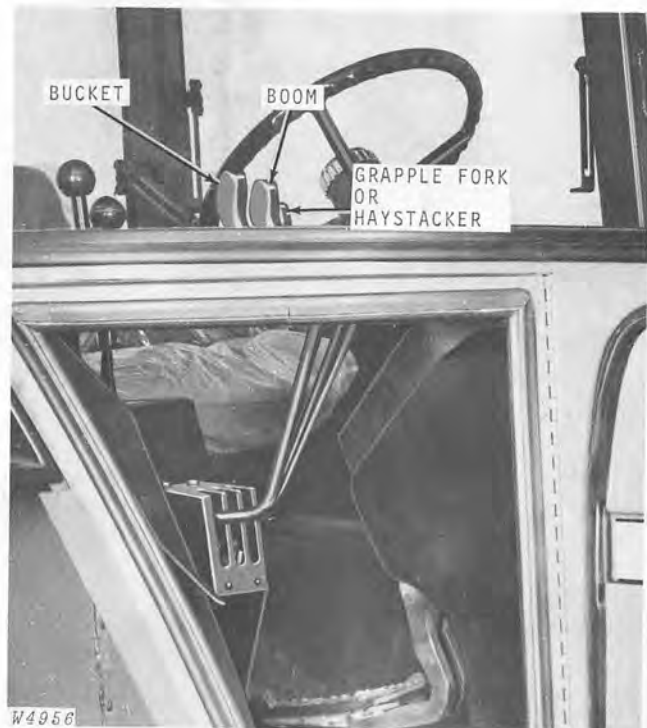
The lever must be held in the operating position.

Loader Using Independent Control Valve

NOTE: A lever stop is required when using the independent control valve. See pages 4 and 5.



For 2520, 3020, 4000, 4020, 4320, 4520, and 4620 Tractors without Cabs



For 4030, 4230, 4430 and 4630 Tractors with Sound-Gard Body or Four Post Roll-Gard

Boom

The boom control lever has four positions.

Neutral - Neutral is the center position. The lever will return to neutral when it is released in all positions except "float".

Raise Boom - Move the lever rearward to raise the boom. The lever must be held in the rearward position until the boom has raised to the desired position. The distance the lever is moved determines the speed of the boom.

Lower Boom - Move the lever forward to lower the boom. The lever must be held in the forward position until the boom has lowered to the desired position. The distance the lever is moved determines the speed of the boom.

Float - Move the lever all the way forward to permit "floating" action. The lever must be manually disengaged from the float position. This position may be used to secure "ground-hugging" bucket action when digging at the extreme bottom of a pile. It may be used to advantage when leveling or cleaning feed yards.

NOTE: The tractor selective control valve linkage must not be set for "float" position when using the loader equipped with independent control valve.

Bucket

Move the bucket lever forward to dump the bucket and rearward to roll back the bucket.

Intermediate positions of the operating lever can be used to control slow and fast operation. The lever must be held in the operating position.

Grapple Fork or Haystacker

Move the lever forward to push off hay or close the grapple fork.

Intermediate positions of the operating lever can be used to control slow and fast operations.

The lever must be held in the operating position.

OPERATING LOADER

To assure smooth operation in cold weather, raise and lower the boom several times to warm the oil in the tractor hydraulic system.



CAUTION: Never operate the loader except from the tractor seat. Before operating the loader, be sure no one is standing near it.

Filling Bucket

When using the loader on a slope, it is best to approach the load uphill and back away downhill. Operating sideways on a slope has a tendency to tip the loading unit.

Drive the tractor straight into the pile for most effective digging. For easier filling, force bucket into the pile, raise the bucket about 6 inches, then drop bucket and drive forward. Repeat this procedure until bucket is filled. When moving large piles, remove top levels first.

Place the boom lever in float position whenever possible when filling the bucket. The float position allows the bucket to follow the contour of the ground for better cleaning.

Dumping Bucket

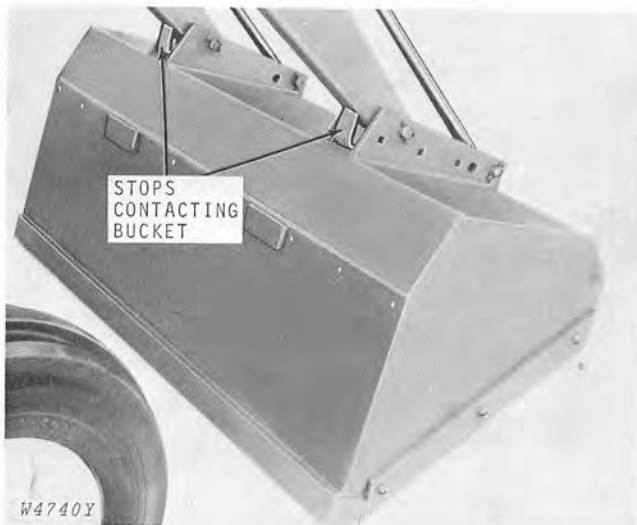
Raise the bucket while approaching the spreader. When the bucket is high enough so that it will not strike the spreader when the bucket is dumped, release the load. Dumping load from a low position provides better loading, less spillage and is easier on the spreader.

Keep the bucket as level as possible when operating at or near maximum height to prevent spilling materials from the bucket onto the tractor.

Lower a heavy load slowly. Stopping a heavy load suddenly, after it has gained downward momentum, may result in damage to the loader or tractor, if done excessively.

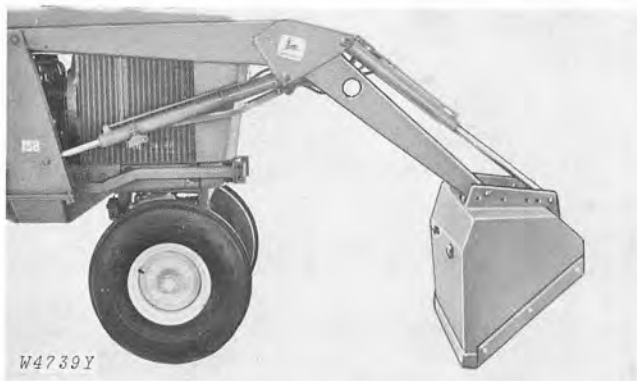
Leveling and Scraping

148 Loader



Be sure that bucket is contacting stops before leveling or scraping. Otherwise, excessive loads are imposed on bucket cylinders.

158 Loader



Position bucket as illustrated above when leveling or scraping.

TRANSPORTING

The tractor ground speed must not exceed 8 mph when transporting a load. Reduce the speed considerably when traveling over rough terrain. Carry the bucket or attachments low for added stability.

CAUTION: When driving the tractor loader on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard, check local governmental regulations. Various safety lights and devices are available from your John Deere dealer.

ADJUSTMENTS

Selective Control Valve Lever

The selective control valve lever can be adjusted for "float" or "no-float" operation. Refer to your tractor operator's manual for these adjustments.

Rate of Cylinder Operation

The speed at which the cylinders extend and retract can be increased or decreased by adjusting the selective control valve. This adjustment controls the maximum flow of oil to the cylinder. Refer to your tractor operator's manual.



Safety Rules

! Simple adjustments and safety features were built into the loader wherever possible. Nevertheless, ordinary caution must be taken when operating the loader. You can avoid many accidents by observing the rules for safety given below. Study these rules carefully and insist that they be followed by those working with you or for you. There is no substitute for a careful and safe minded operator.

Before operating the loader, be sure no one is standing near it.

Only one person, the operator, should be on the tractor-loader when it is in operation.

In no case should anyone ride in the bucket, or hitch a ride in any manner.



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Never drive the tractor-loader down a hill that is steeper than 15 degrees.

The tractor ground speed must not exceed 8 mph when transporting a load.

Carry the load low at all times, especially when working on a hill or backing up an incline.

Keep the tractor ground speed slow when operating the loader over rough terrain, especially when operating at or near maximum lift height.

When operating the loader, remain at the controls until the cycle is completed.

Lower the bucket or attachments to the ground when the loader is unattended; be sure that the grapple fork teeth are closed.

Never use the loader as a battering ram.

Under most operating conditions:

- a) Use of a seat belt with optional John Deere Roll-Guard or Sound-Gard Body is recommended.
- b) Use of a seat belt on a tractor without roll-over protective equipment is not recommended.

Lower the boom and bucket to the ground and shut off tractor engine before adjusting, servicing or lubricating the loader.

Where barn doors or gates limit the rear wheel tread, extra precaution must be taken when operating the loader due to decreased stability.

Never operate the loader without the minimum recommended amount of rear wheel ballast.

Always keep the PTO clutch lever in neutral or disengaged position while using the loader.

Read and follow the instructions shown on the decals attached to the loader.

Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

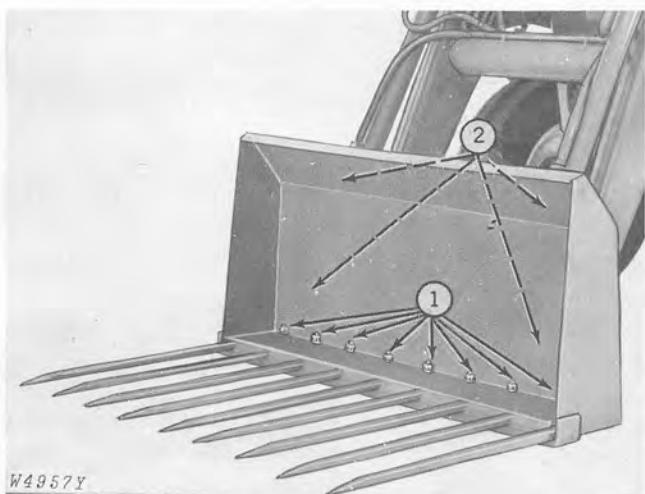
If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.



Extra Equipment

60-INCH MANURE FORK

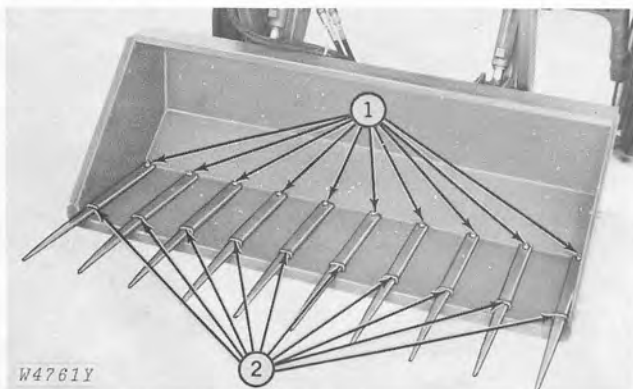
The manure fork is used for handling strawy, compacted manure.



1. Attach 30-inch long tines with nine $1/2 \times 1-1/2$ -inch plow bolts, lock washers and nuts.
2. Attach manure fork to boom and cylinders with four pins and $1/4 \times 1-3/4$ -inch cotter pins.

TINES

The tines are used to adapt the materials bucket for use as a manure fork and can be used on 60, 72 or 84-inch buckets.



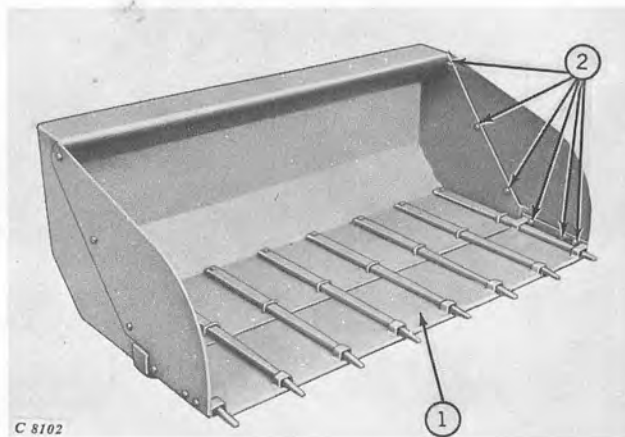
To attach the tines:

1. Attach the tines to bucket with $1/2 \times 1-1/2$ -inch cap screws, lock washers, and nuts.
2. Attach tines to bucket with U-bolts and secure with $3/8$ -inch lock washers and nuts.

EXTENSIONS FOR 60-INCH MATERIALS BUCKET

The bottom sheet and side sheets increase the capacity of the 60-inch materials bucket for handling bulky materials.

NOTE: Tines must be used when bucket is equipped with bottom sheet and side sheet extensions.

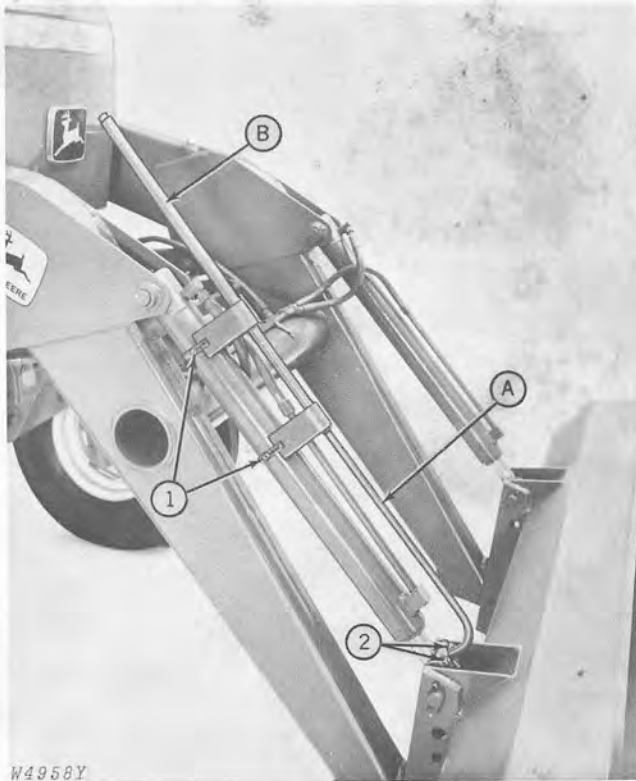


To attach the extensions:

1. Slide bottom sheet onto tines.
2. Assemble end sheets to bucket and bottom sheet with twelve $1/2 \times 1$ -inch cap screws and lock nuts.

BUCKET LEVEL INDICATOR

This attachment allows the operator to easily see if the bucket is level or not when the boom is in the lowered position.



Attaching

Lower boom to the ground and level bucket. Shut off tractor and relieve hydraulic pressure in bucket cylinder hoses by moving bucket control lever fore and aft several times.

1. Disconnect right bucket cylinder hoses. Attach indicator assembly to cylinder with two hose clamps. Do not tighten clamps. Connect hydraulic hoses.

2. Attach indicator rod "A" to bucket cylinder rod with U-bolt, two 3/8-inch lock washers and nuts.

IMPORTANT: Avoid cylinder damage. Clamp indicator rod as close as possible to the end of the cylinder rod.

Adjusting

Slide tube assembly "B" on rod "A" until about two inches of rod "A" extends beyond the tube.

Tighten hose clamps.

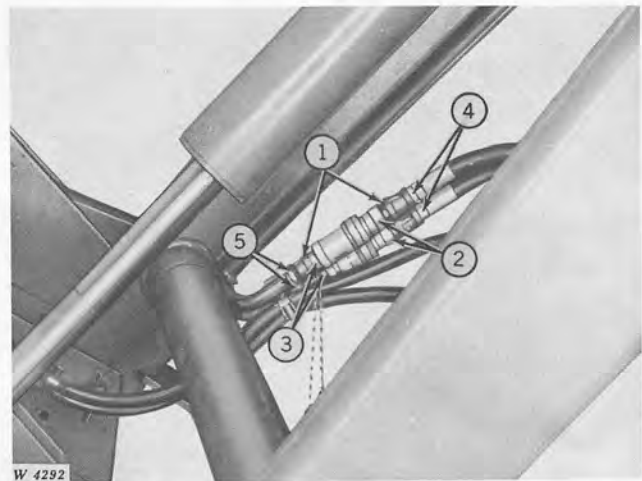
Paint portion of rod "A" which extends through tube "B" a bright color.

Operation

When the boom is in a raised position, move the bucket until only the painted portion of rod "A" extends through tube "B". When the boom is lowered to the ground, the bucket will be level.

QUIK-COUPERS (STANDARD WITH THIRD FUNCTION BUNDLES)

The Quik-Couplers make the attaching and detaching of the grapple fork or hay stacker cylinder hydraulic hoses much easier and faster.



1. Attach 1/2-inch straight pipe fitting to 1/2-3/8-inch reducer.

2. Attach 1/2-inch straight pipe fitting and reducer to male Quik-Coupler.

3. Insert dust plug around 1/2-inch straight pipe fitting and attach to female Quik-Coupler.

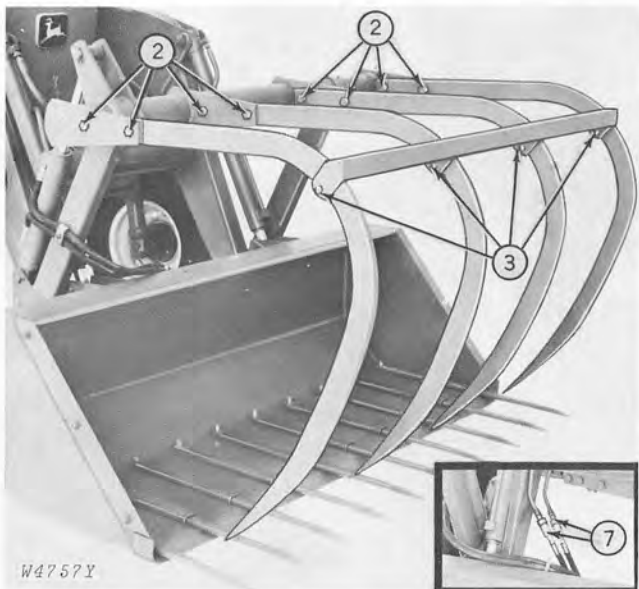
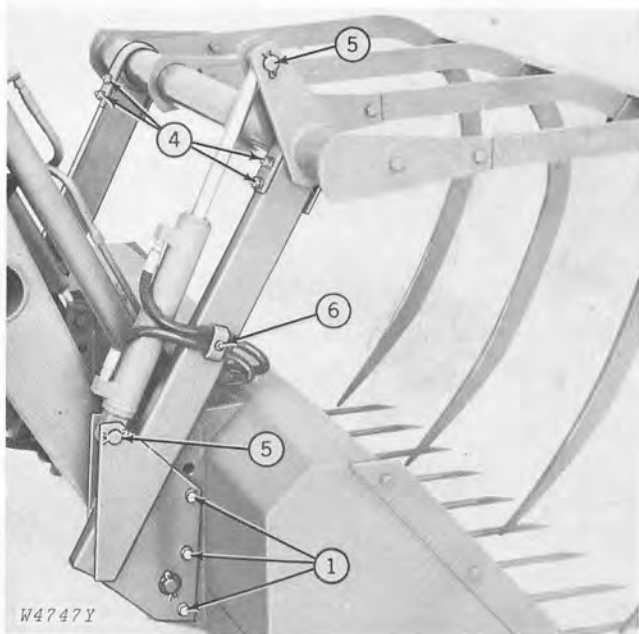
4. Attach male Quik-Coupler to hoses from cylinder.

5. Attach female Quik-Coupler to oil tubes.

GRAPPLE FORK

This attachment is used for removing loose hay from stacks and chopped hay and silage from trench silos.

The grapple fork attachment may be mounted on loaders equipped with 60-, 72-, or 84-inch bucket.



To assemble:

1. Attach supports to bucket and secure with six 5/8 x 1-3/4-inch carriage bolts, lock washers, and nuts.

2. Attach grapple teeth to frame with eight 5/8 x 2-inch cap screws, lock washers, and nuts.

3. Attach reinforcement strap to grapple teeth with four 3/8 x 1-5/8-inch cap screws, lock washers, and nuts.

4. Attach frame and tooth assembly to supports with U-straps and four 1/2 x 5-1/4-inch cap screws, lock washers, and nuts.

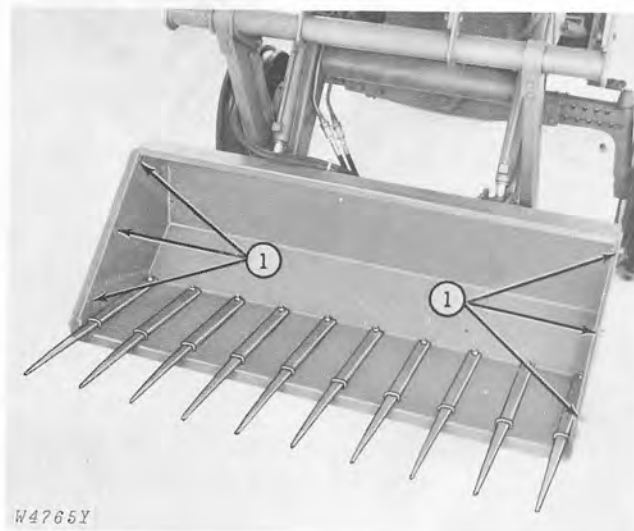
5. Attach cylinder to grapple fork with long pin in bottom hole, short pin in upper hole, plain washers, and secure with 1/4 x 1-3/4-inch cotter pins.

6. Attach hoses to support with clamp and secure with 3/8-inch lock washer and nut.

7. Use Quik-Couplers to attach grapple cylinder rod end to top boom oil tube, and cylinder head end to bottom boom oil tube.

SIDE CUTTING EDGES

Side cutting edges reinforce the sides of the bucket and provide a vertical cutting edge for greater digging ability.



To attach the edges:

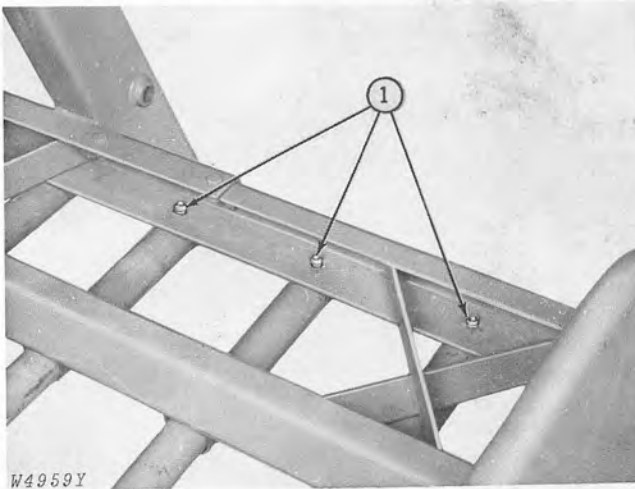
1. Attach right- and left-hand side cutting edges with six 1/2 x 1-1/4-inch cap screws, lock washers, and nuts.

HAYSTACKER

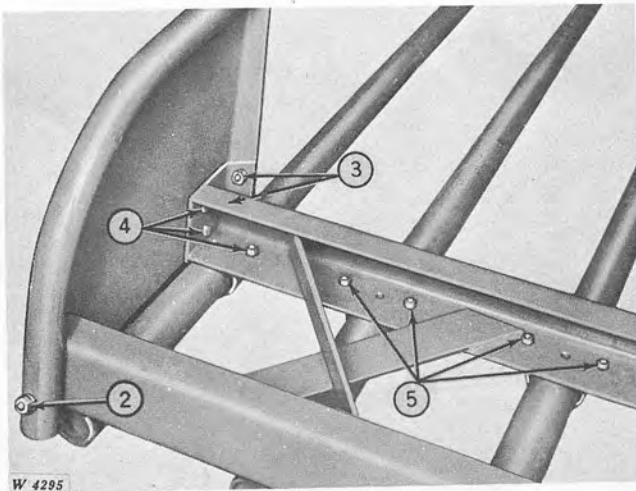
The haystacker is used for picking up and piling loose hay. It can also be used for handling baled hay.

To assemble:

Hoist frame off ground.



1. Attach tines to cross frame with fourteen 1/2 x 4-inch cap screws, plain washers, lock washers, and nuts.

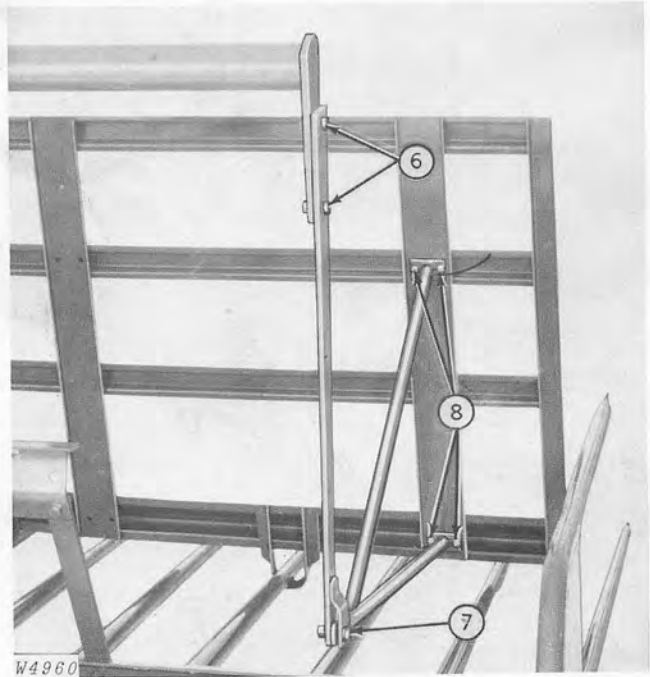


2. Attach right and left side sheet to cross frame with two 1/2 x 2-3/4-inch cap screws, lock washers and nuts.

3. Attach right and left side sheet to cross frame with four 1/2 x 1-inch cap screws, lock washers, and nuts.

4. Attach outer tine retainers to cross frame with six 3/8 x 1-inch cap screws, lock washers, and nuts.

5. Attach tines to frame with clamps, 3/8 x 1-inch cap screws, lock washers, and nuts.

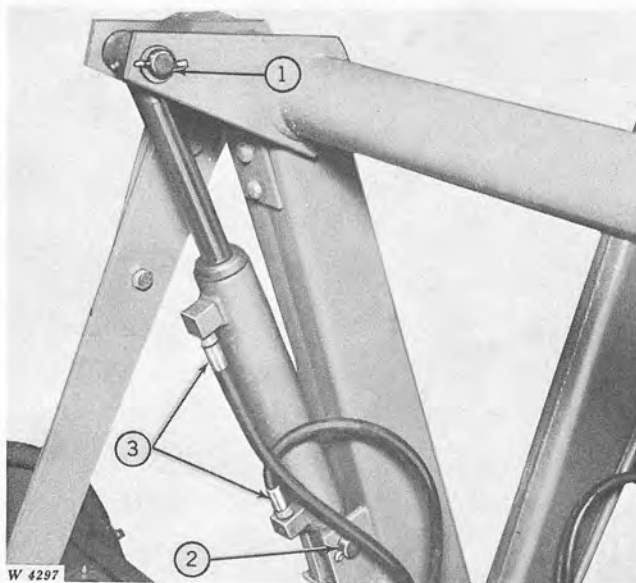


6. Attach support arms to support frame with four 5/8 x 1-3/4-inch cap screws, lock washers, and nuts.

7. Attach link to support arm with two 5/8 x 2-1/4-inch cap screws, lock washers, and nuts.

8. Attach links to push-off with eight 1/2 x 1-inch cap screws, lock washers, and nuts.

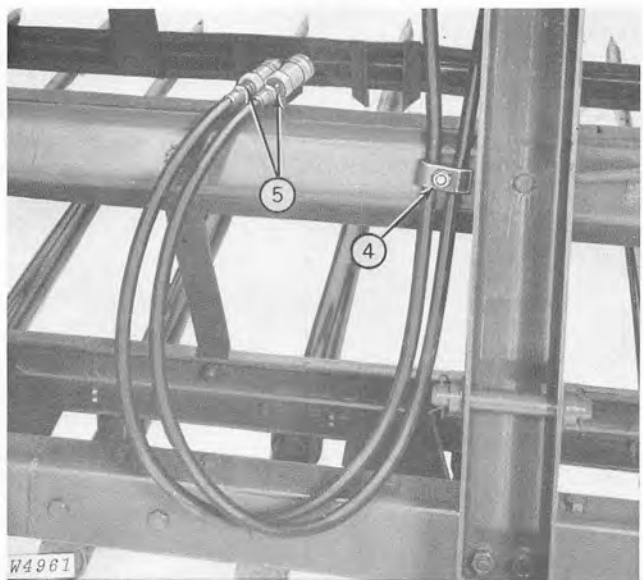
Attaching Cylinder and Hoses



1. Attach cylinder rod end to pivot with one long pin, two flat washers, and two 1/4 x 1-3/4-inch cotter pins.

2. Attach cylinder head end to support frame with one shorter pin, two flat washers, and two 1/4 x 1-3/4-inch cotter pins.

3. Attach two 3/8 x 64-inch hydraulic hoses to cylinder. Use teflon tape on hose ends.



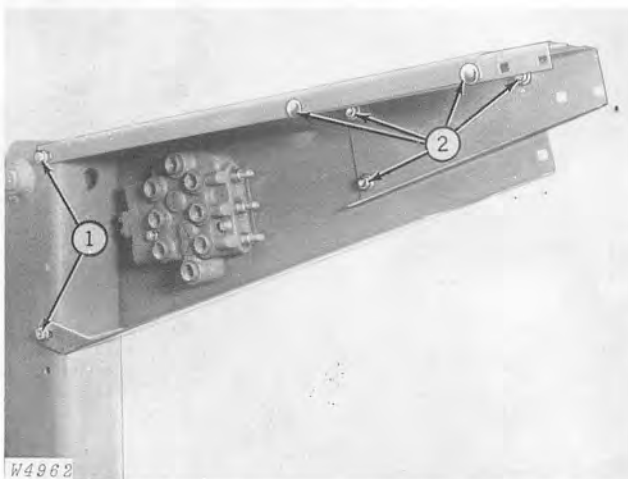
4. Attach hoses to support frame with one clamp, 1/2 x 2-inch cap screw, lock washer, and nut.

5. Attach hoses to Quik-Couplers using two reducing bushings. Use Teflon tape on hose ends. Use Quik-Couplers to attach haystacker cylinder rod end to top boom oil tube, and cylinder head end to bottom boom oil tube.

INDEPENDENT CONTROL VALVE

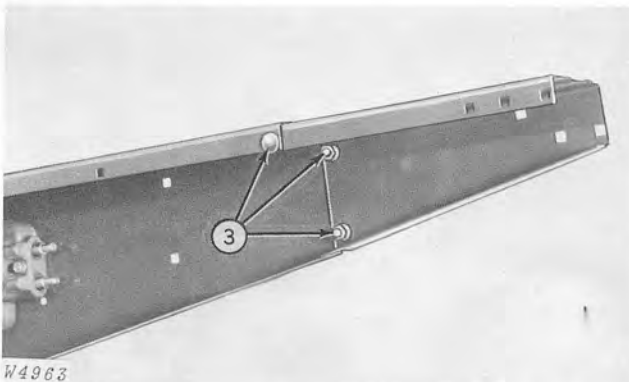
For 2520, 3020, 4000, 4020, 4320, 4520, and 4620 Tractors without Cabs

Support and Control Linkage

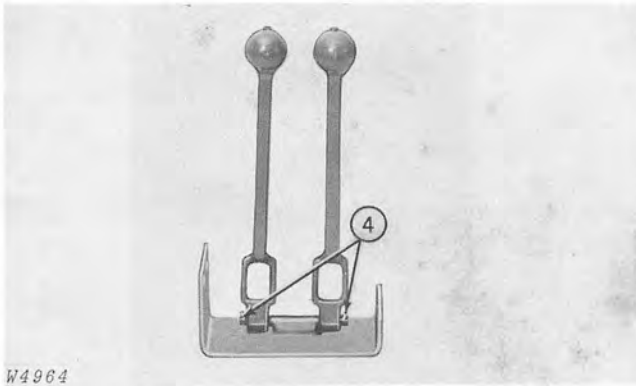


1. Attach valve support to mast with two 3/8 x 5-3/4-inch cap screws, lock washers, and nuts.

2. (For 3020 and 4020 Tractors with standard fenders only.) Attach extension to valve support in the short position with five 3/8 x 3/4-inch carriage bolts, lock washers, and nuts.

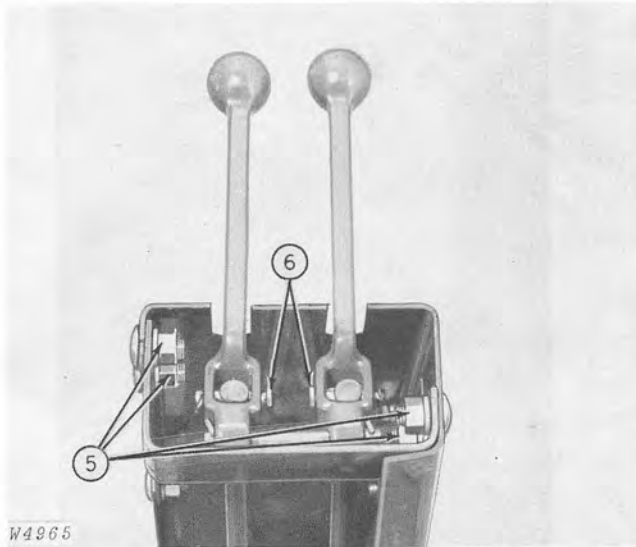


3. Attach extension to valve support in the extended position with three 3/8 x 3/4-inch carriage bolts, lock washers, and nuts.



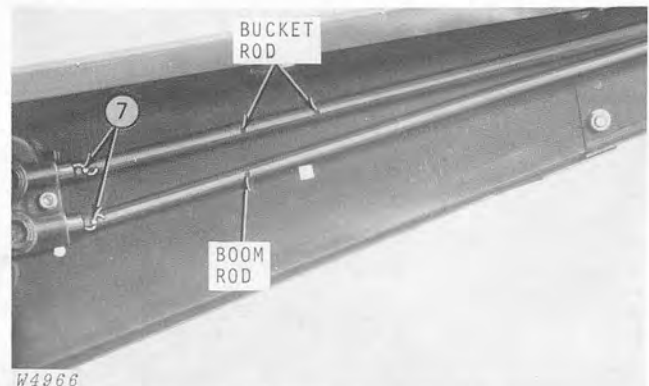
4. Attach handles to holder with two S-type cotter pins.

If two-function valve is used, proceed with steps 5, 6, and 7. If three-function valve is used, proceed to steps 8, 9, 10, and 11.



5. Attach handles and holder to extension with four 3/8 x 3/4-inch carriage bolts, lock washers, and nuts.

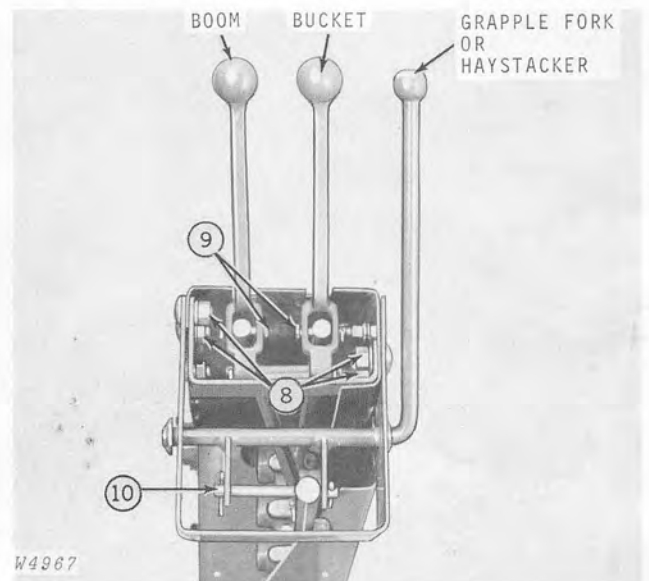
6. Attach control rods to handles with two pins and S-type cotter pins.



7. Attach control rods to valve with two pins and S-type cotter pins.

NOTE: The boom rod has one identification mark and is connected to the inner control handle. The bucket control rod has two identification marks and is connected to the outer control handle.

If three-function valve is used:

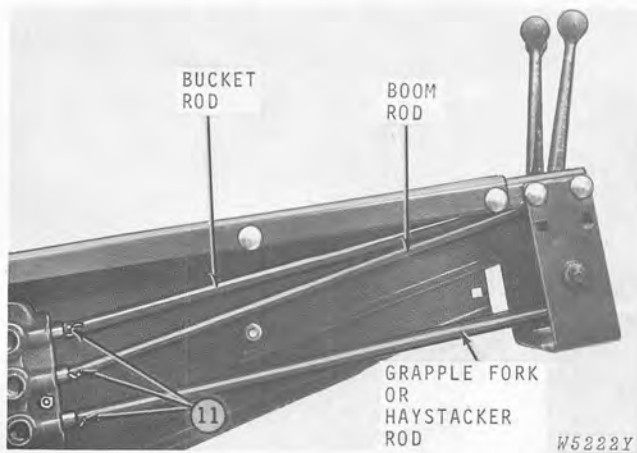


8. Attach handles and holder and third function control assembly to extension with four 3/8 x 3/4-inch carriage bolts, lock washers, and nuts.

9. Attach control rods to boom and bucket handles with two pins and S-type cotter pins.

10. Attach third function control rod to handle with one pin and two cotter pins. The third function control rod has no identification marks.

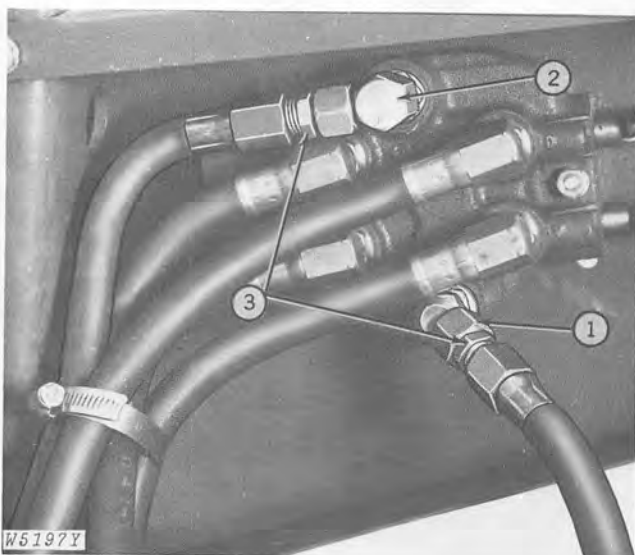
INDEPENDENT CONTROL VALVE—Continued



11. Attach control rods to valve with three pins and S-type cotter pins as pictured above. The third function control rod attaching pin is longer than the boom and bucket pins.

NOTE: When the extension is used in the short position, the control rods must be cut off 1/4 inch to the rear of the control handle pins.

Hydraulic Connections

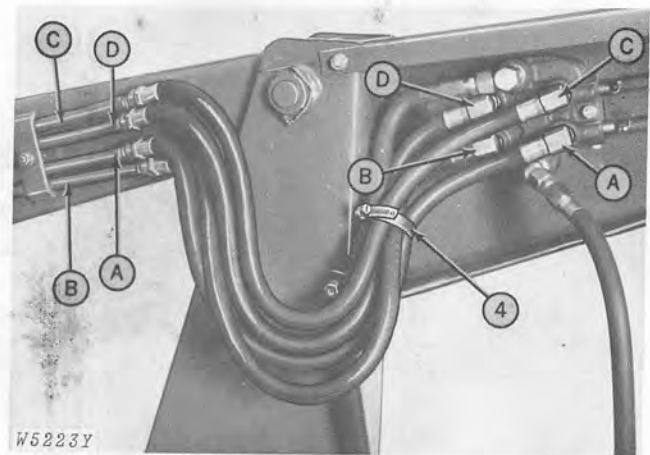


1. Connect 45-degree fitting and O-ring to valve "in" port.

2. Connect 90-degree fitting and O-ring to valve "out" port.

3. Connect pressure and return hoses to 45-degree and 90-degree fittings, using two straight adapters.

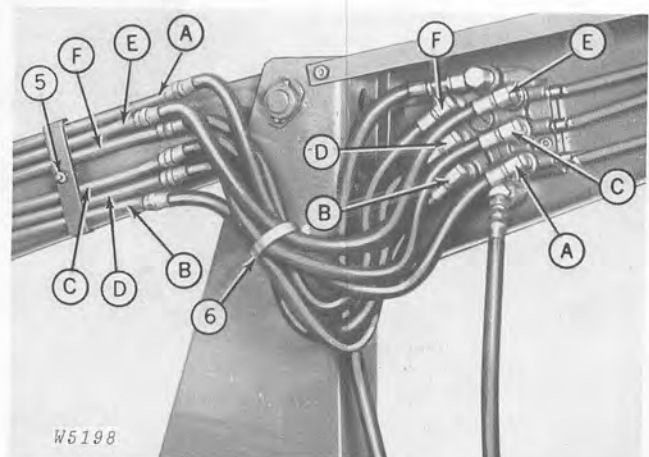
If two-function valve is used:



Connect valve to oil tubes with four 3/8 x 29-inch hoses according to the above alphabetical sequence. Use teflon tape on the oil tubes and O-rings on the valve end of the hoses.

4. Clamp hoses together.

If three-function valve is used:



5. Remove short clamps and add third function lines over and under existing lines. Secure with long clamps, lock washers, and nuts.

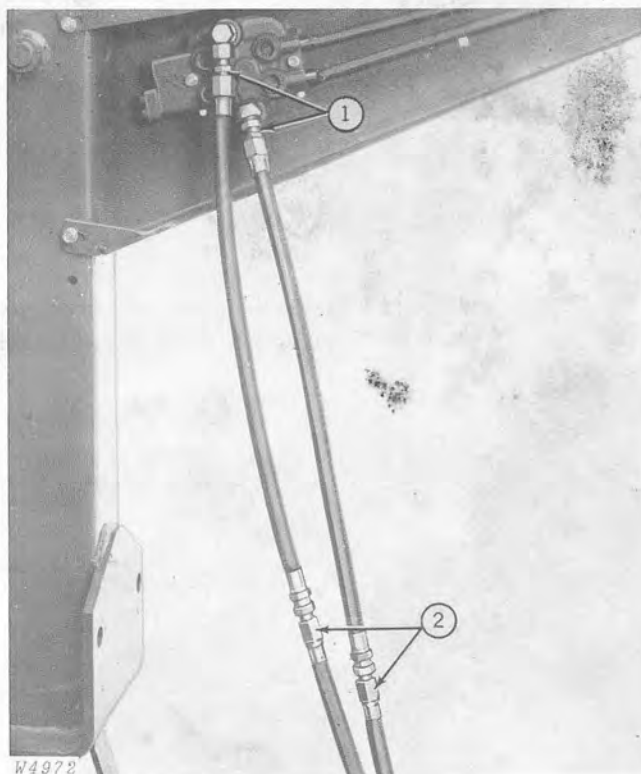
Connect valve to oil tubes with six 3/8 x 29-inch hoses according to the above alphabetical sequence. Use Teflon tape on the oil tubes and O-rings on the valve end of the hoses.

6. Clamp hoses together.

Hose Extensions

Hose extensions are required for the 158 Loader with independent control valve on John Deere 4000, 4020, 4320, 4520 and 4620 Tractors; and for the 148 Loader with independent control valve on John Deere 2520, 3020, 4000, 4020 and 4320 Tractors.

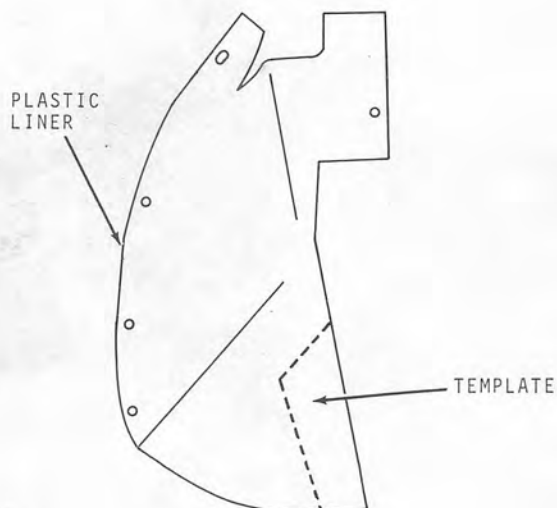
To attach hose extensions:



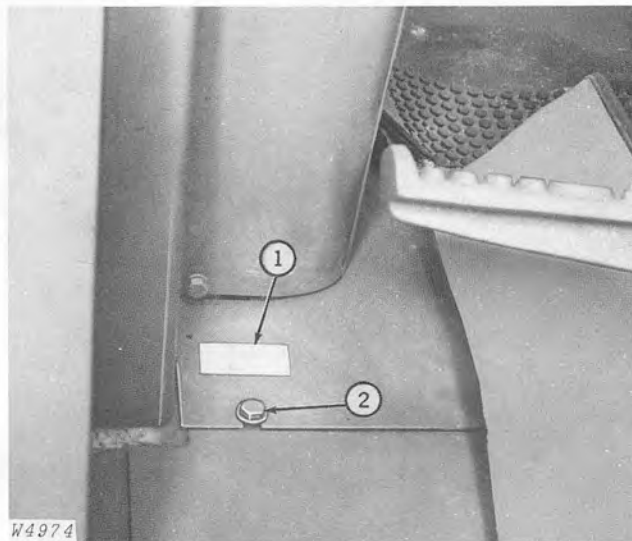
1. Attach extensions to 90-degree and 45-degree fittings with two adapters.
2. Attach extensions to pressure and return hoses.

For 4030, 4230, 4430, and 4630 Tractors with Sound-Gard Body or Four Post Roll-Gard

Attaching Valve Control Console

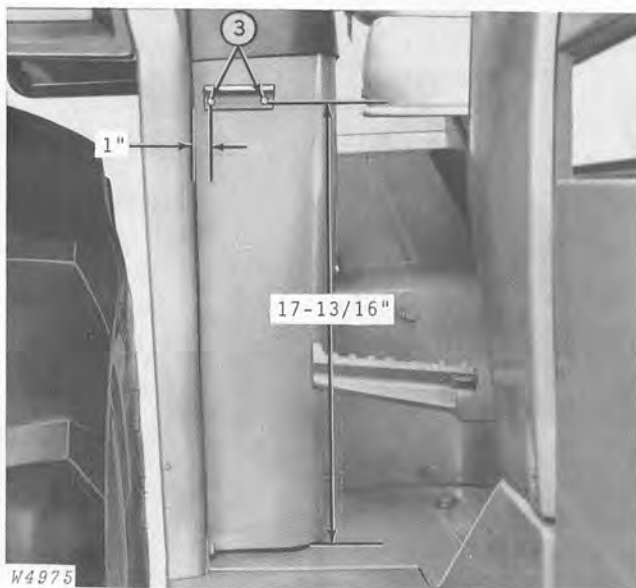


Remove plastic liner from inside of tractor fender in front of the tractor control console. Use template provided to cut the plastic liner as shown above. Replace liner.



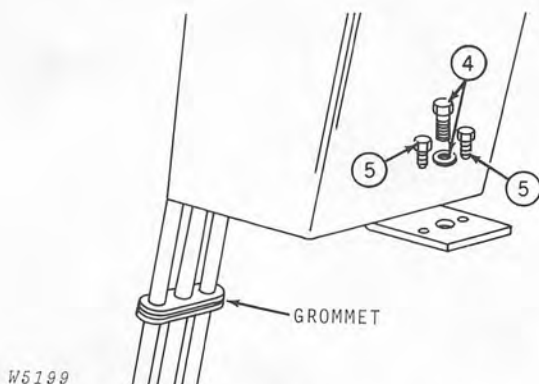
1. Raise tractor floor mat and remove knock-out plug. Remove rough edges from around knock-out hole.
2. Remove cap screw and washer from weld nut.

INDEPENDENT CONTROL VALVE—Continued



3. Raise console top cover and position console support bracket as shown, using dimensions given to position bracket. Using bracket as a template, drill two holes. Attach bracket to the front of the tractor console with two 1/4 x 1/2-inch cap screws and lock washers. Place backing plate with two threaded holes on the inside of the tractor console to secure the cap screws and bracket. Lower and re-attach console top cover.

Place valve console control cables through knockout hole in tractor floor.



Lubricate cables below grommet with a non-petroleum base lubricant. Lubricate outer edge of grommet and slide on cables into knock-out hole.

4. Attach valve console to weld nut under tractor floor with one 5/16 x 7/8-inch cap screw and plain washer.

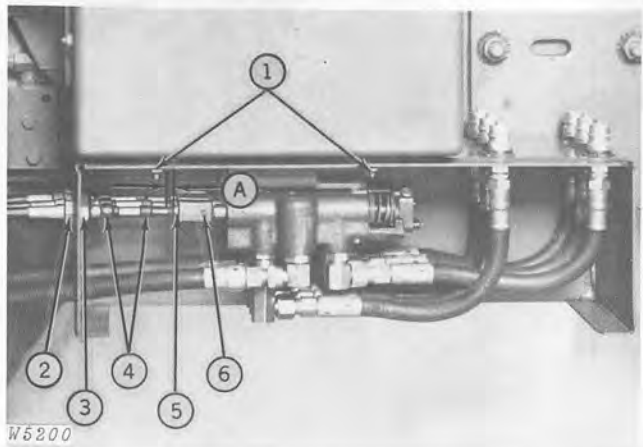
5. If weld nut is not accessible, drill two 7/32-inch holes in the tractor floor using the bottom console bracket as a template. Attach console to floor with two drive screws.



6. Attach valve console to upper support bracket with two 1/4 x 1/2-inch cap screws and plain washers.

Place a 1/4-inch pin (supplied) through console and control handles to hold handles in neutral position while the following installation and adjustments are made.

Attaching Valve Support and Control Cables



1. Remove battery and attach valve support to battery box with two 1/2 x 1-1/4-inch carriage bolts, plain washers, lock washers and nuts. Replace battery.

2. Thread outer cable nuts onto control cables until they hang loose on cables.

3. Push cables through valve support and slide star washers and inner cable nuts onto cables.

4. Slide two rubber protectors onto each cable.

5. Thread 1/4-inch nuts onto cables so that dimension "A" is 1/4 inch.

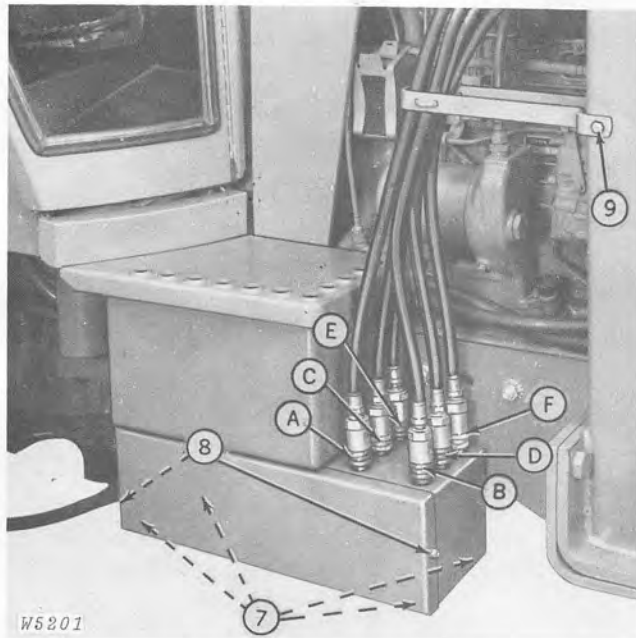
6. Thread connectors onto cables up to the 1/4-inch nuts. Do not tighten. Attach connectors to valve with drilled pins.

Thread inner cable nuts up to valve support wall. Do not tighten.

Thread outer cable nuts up to valve support wall and tighten.

Remove pins from connectors and adjust connectors so valve spool is in the neutral position. Replace drilled pins and secure with cotter pins. Tighten 1/4-inch nuts against connectors.

Remove 1/4-inch pin from console and control handles.



7. Attach support bottom cover to support with four 1/4 x 1/2-inch hex. head drive screws.

8. Attach support front cover to support with two 1/4 x 1/2-inch hex. head drive screws.

9. Attach hose support to mast with one 3/8 x 5-3/4-inch cap screw, lock washer, and nut.

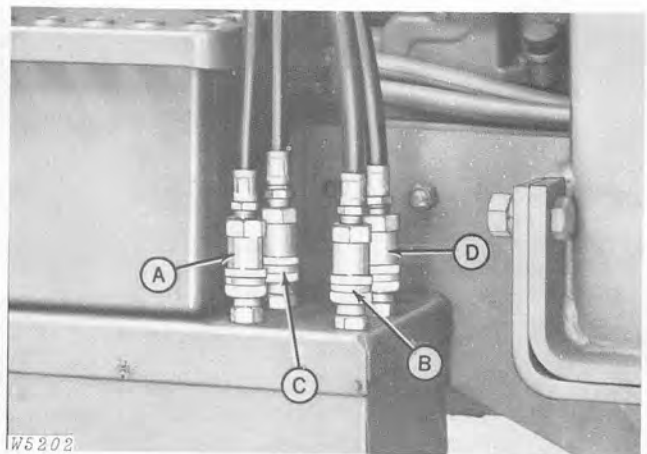
Use adapters to attach hydraulic hoses to boom oil tubes.

Insert hoses through hose support and attach Quik-Couplers to valve box as follows:

Three-Function Valve (shown at left)

- Attach F to top oil tube
- Attach A to second oil tube
- Attach B to third oil tube
- Attach C to fourth oil tube
- Attach D to fifth oil tube
- Attach E to bottom oil tube

Two-Function Valve



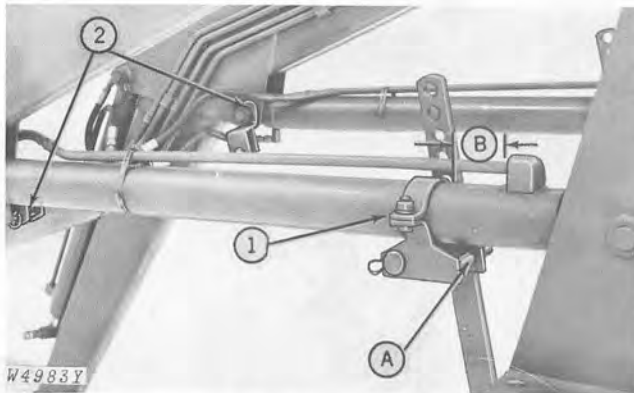
- Attach C to top oil tube
- Attach D to second oil tube
- Attach A to third oil tube
- Attach B to bottom oil tube

MOUNTING STANDS

Mounting stands make attaching and detaching the loader fast and easy. The stands may be installed with the loader on or off the tractor.

If the mounting stands are installed with the loader off the tractor, do not use the mounting stands to attach the loader to the tractor.

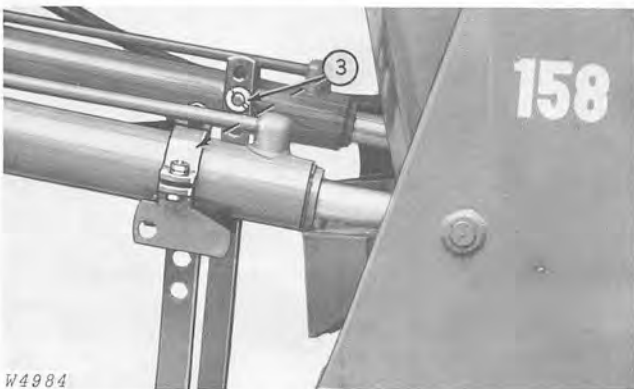
Some mounting stand adjustments can only be accomplished with the loader attached to the tractor. See "Detaching" page 28.



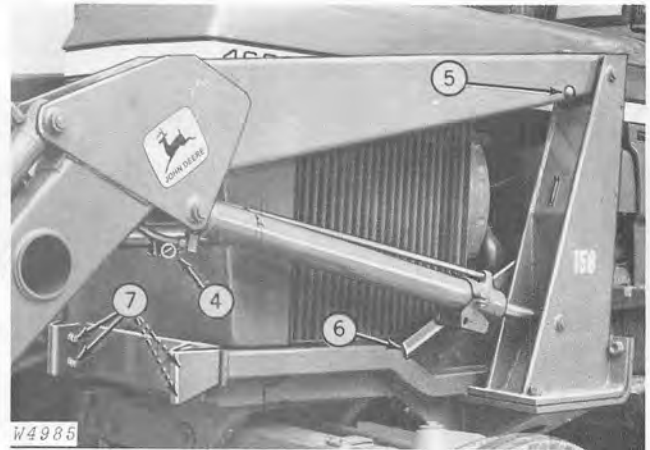
1. Attach cylinder clamp with stop "A" to left-hand cylinder. Attach other clamp to right-hand cylinder in a similar manner. Be sure that studs are horizontal and dimension "B" is approximately 4 inches.

IMPORTANT: These clamps must be positioned properly to avoid possible interference with the tractor during loader removal.

2. Remove drive pins and S-type cotters from cylinder pins and install storage brackets. Secure with longer drive pins and S-type cotters supplied.



3. Attach mounting stand to clamps in the mid position adjustment hole. Secure with plain washers and Quik-Lock pins.



4. Swing mounting stand up into storage brackets and secure with two pins and Quik-Lock pins.

5. Install pin in boom and secure with spacer, plain washer, and spring locking pin, in that order.

6. Attach lift link to mounting bracket and secure with spring pin.

7. Attach guide assemblies to front brackets with four 5/8 x 2-1/4-inch carriage bolts, lock washers and nuts.



8. Attach lift link storage bracket to mast with one 3/8 x 5-3/4-inch cap screw, lock washer, and nut.



Lubrication



CAUTION: Lower bucket to the ground and shut off tractor engine before lubricating the loader.

If loader is equipped with grapple fork attachment, lower bucket to the ground, close grapple fork attachment teeth, and shut off tractor engine before lubricating the loader.

Grease fittings are provided at all points indicated in the illustrations on these two pages. Lubricate these fittings as indicated with John Deere Multi-Purpose Lubricant or an equivalent SAE multipurpose-type grease. If any grease fittings are missing, re-

place them immediately. Clean the fittings thoroughly before using grease gun.

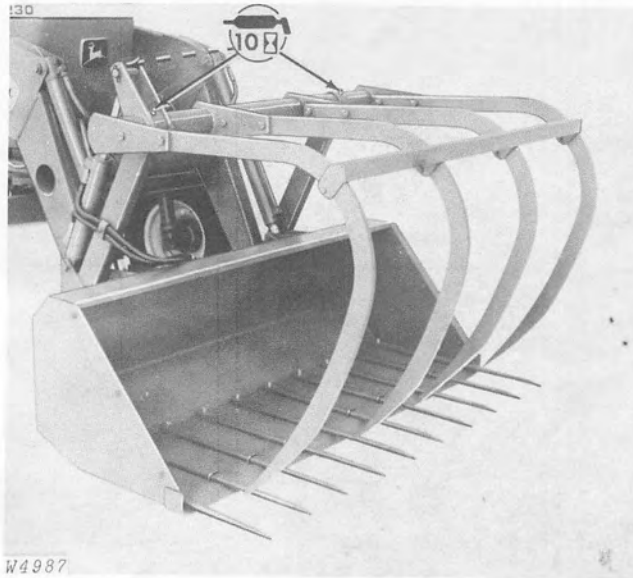
SYMBOLS



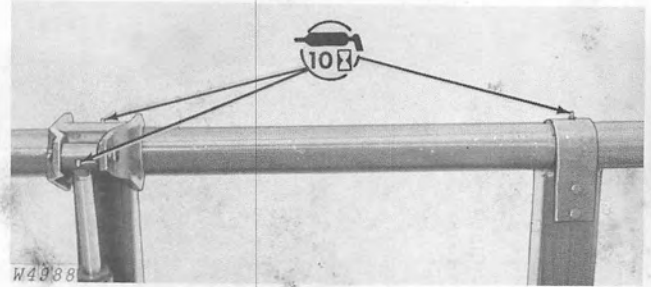
Lubricate with John Deere Multi-Purpose Lubricant or an equivalent SAE multipurpose-type grease at hourly intervals indicated on the symbols.

The time interval recommended is based on normal conditions; severe or unusual conditions may require more frequent lubrication.

Grapple Fork



Haystacker



SAFETY FIRST

THE COMPLETE OBSERVANCE of one simple rule would prevent many thousand serious injuries each year. THAT RULE IS: "NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST A MACHINE WHILE IT IS IN MOTION."

X 1282



Trouble Shooting

Use the following chart to determine possible cause and remedy of difficulties which may arise even after following the operating instructions in this manual. If the trouble is not corrected, consult your John Deere Dealer.

Problem	Possible Cause	Remedy
Jerky lift operation	Cold oil.	Raise and lower boom with tractor at half throttle.
	Low oil supply or air in hydraulic system.	Check for oil leaks or loose connections. Also check oil supply in hydraulic system. (See tractor operator's manual for proper amount and type of oil.)
	Poor oil circulation.	Check oil filter in tractor hydraulic system.
	Hydraulic pump starvation on tractors with SR transmission.	Shift tractor to neutral to allow pump to catch up or see your John Deere Dealer.
Oil leaks	Defective fittings or hoses. Loose connections.	Replace fittings or hoses. Reseal connections with teflon tape.
	Worn or damaged O-ring or U-cup seals at rod end of cylinder.	Replace O-ring or U-cup seals.
	Seals in valve worn or damaged.	Replace seals.
Insufficient lift capacity	Improper stroke control valve adjustment in tractor.	See your John Deere Dealer.
Slow raise	Improper rate of flow through selective control valve in tractor.	Adjust rate of flow. See your tractor operator's manual.
Pump or valve in tractor not operating properly		See your John Deere Dealer.
Bucket tines bend or break	Only a few bucket tines were under load.	Always be sure that three or more bucket tines are under load before using full lift pressure.

24 *Trouble Shooting*

Problem	Possible Cause	Remedy
Excessive wear on bottom of bucket and wear pads	Float position not used while operating loader	Use float position provided on valve.
Boom raises when tractor lever is pushed forward.	Hoses improperly connected.	Correct hose connections.
Hydraulic cylinders inoperative.	Hoses from independent control valve improperly connected to rear of tractor.	Correct hose connections.
	Damaged check valve on outlet of independent control valve.	Replace with new check valve assembly.

**A Careful Operator
IS THE BEST INSURANCE
AGAINST AN ACCIDENT**

X 1285



Service

CYLINDERS

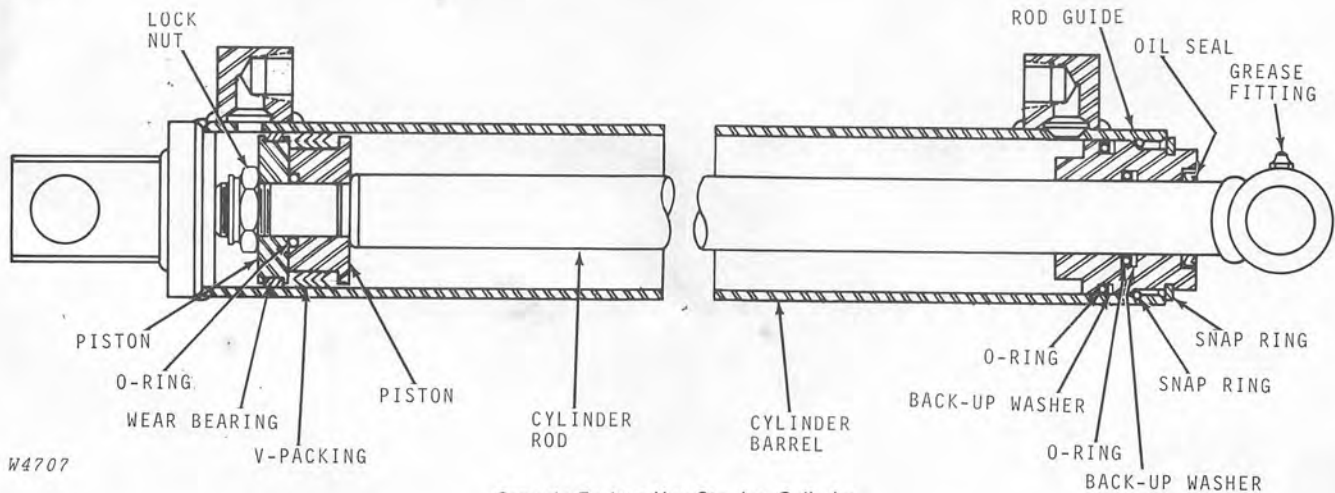
CAUTION: Lower bucket to the ground and shut off tractor engine before servicing the loader. Relieve pressure in cylinders by moving control levers forward and rearward several times.

The following illustrations show cross sectional views of the cylinders. If the parts are removed for service, they must be replaced in the manner illustrated.

NOTE: Install V-packing as shown in illustration below.

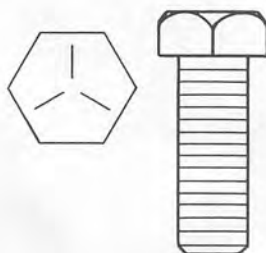
Wash cylinder thoroughly with cleaning fluid before taking it apart. The internal parts have been machined to a high finish and must be handled carefully.

Be sure the parts are free from dust or foreign material and are well lubricated before reassembling the cylinder.



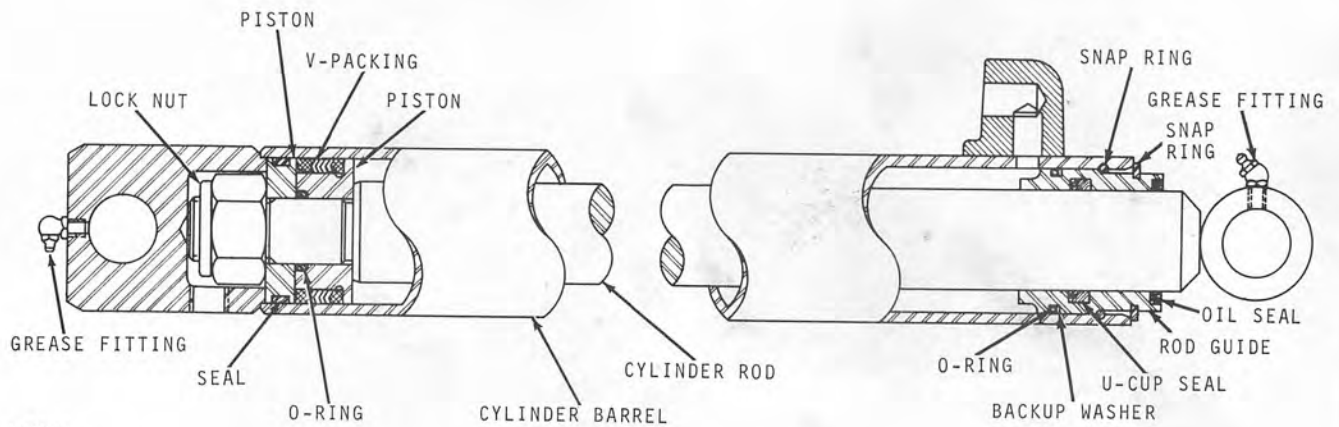
Grapple Fork or Hay Stacker Cylinder

BOLT TORQUE CHART

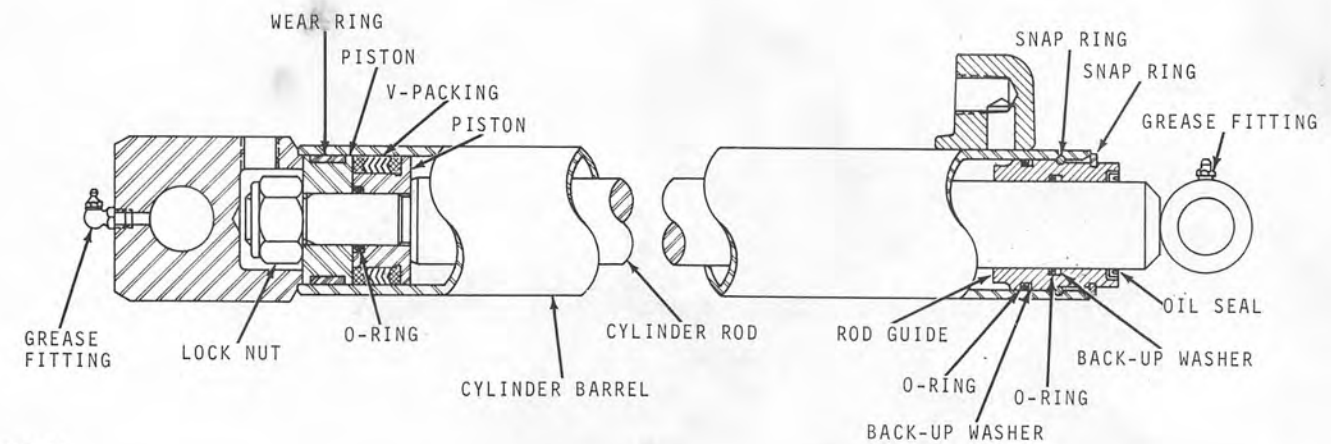


Mark on Bolt Head
Indicating High-Strength

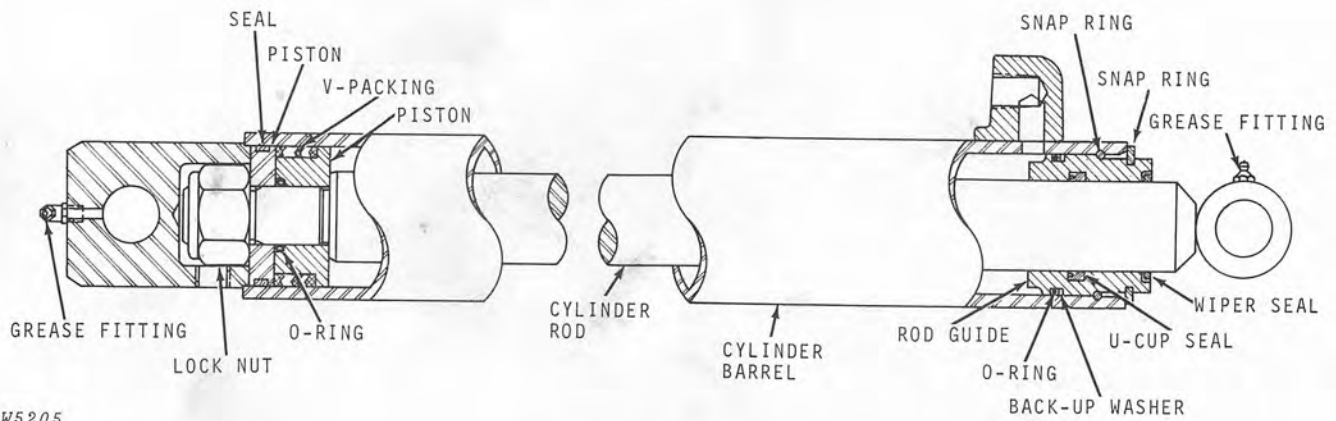
Bolt Size	Torque Wrench Setting Ft-lbs for Regular Bolt	Torque Wrench Setting Ft-lbs for High-Strength Bolt
1/4	6	10
5/16	13	20
3/8	23	35
7/16	35	55
1/2	55	85
9/16	75	130
5/8	105	170
3/4	185	300
7/8	202	450



Lift Cylinder - 148 Loader

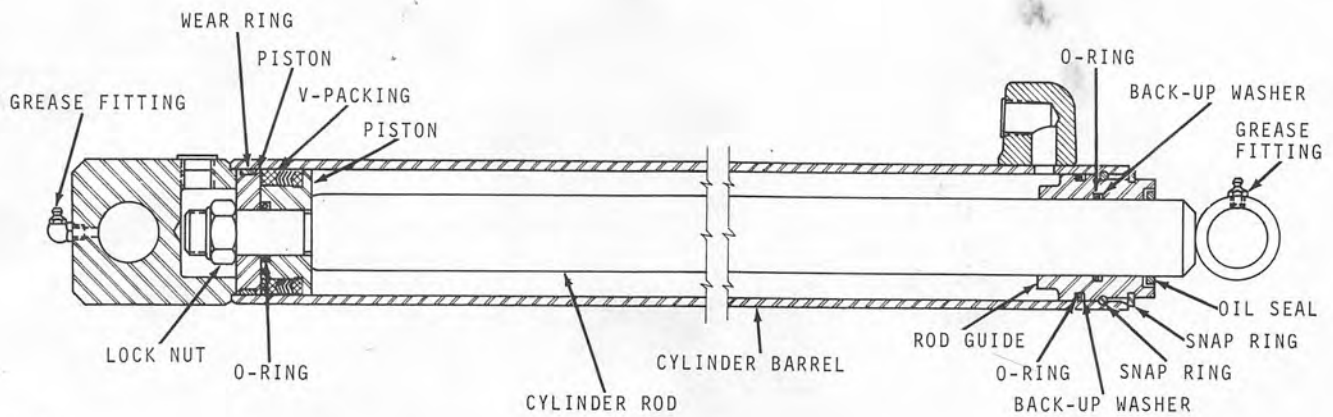


Bucket Cylinder - 148 Loader



W5205

Lift Cylinder - 158 Loader



W5206

Bucket Cylinder - 158 Loader



Detaching

These instructions and illustrations cover the loader equipped with mounting stands. If the loader is not equipped with mounting stands, follow the same procedure using a chain hoist to lift and guide the loader.

NOTE: The bucket must be in the fully-dumped position, on the ground, or filled and resting level on the ground to properly remove the loader.

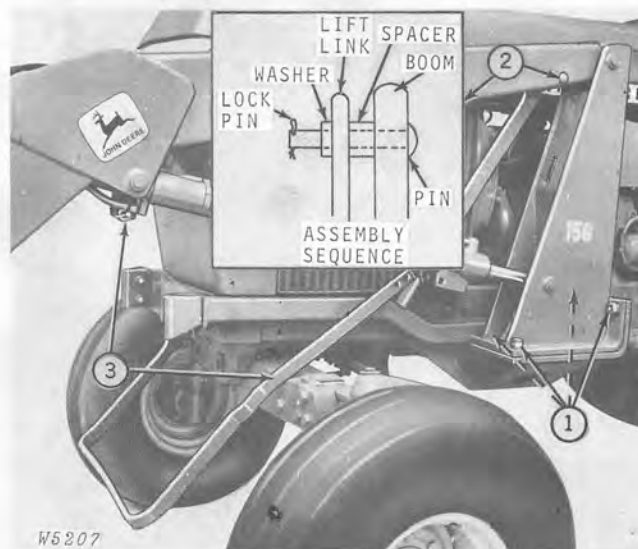
Turn off tractor and relieve pressure in hydraulic lines by moving control levers forward and rearward several times.

If loader is operated by tractor selective control valve or independent control valve on the mast, remove oil lines from the rear of the tractor.

If loader is operated by independent control valve for Generation II Tractors with Sound Gard Body or Four Post Roll Gard, disconnect Quik-Couplers from valve box.

CAUTION: Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.



1. Remove eight bolts (four each side) which secure loader to side frames.

2. Remove lift link from storage bracket and attach to boom with pin, spacer, plain washer and spring locking pin. Slide spacer on pin so that spacer is next to boom. Attach lift link to pin. Place plain washer on pin and secure with spring locking pin.

3. Remove pins from mounting stand storage brackets and allow mounting stand to swing down and rest on front axle. Replace pins in storage brackets.



W4990

4. Back tractor slowly and stop when the lift link is in the vertical position.

NOTE: If the loader is being removed for the first time, minor mounting stand adjustments are necessary.

5. Slide cylinder clamps on cylinder so that the mounting stand hangs vertically and as close as possible to the front axle.

6. Raise or lower the mounting stand on the cylinder clamps so that the mounting stand just clears the ground.

If ground conditions are soft, place a piece of wood under the mounting stand to stop the loader from sinking.

CAUTION: Be sure cylinder clamps are tight and the mounting stand is properly locked on the cylinder clamps.

Back the tractor out slowly.

CAUTION: When the lift link is in the vertical position, stop the tractor if necessary to insure that the mounting stand is not swinging.



W4999

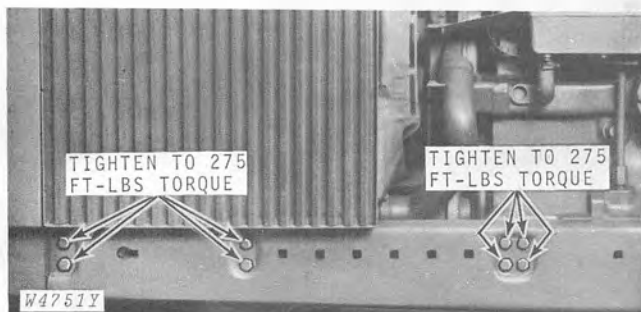
When the tractor is clear of the loader, remove the pin from the boom and place it in the left cylinder clamp (as shown above) to prevent the loader from falling backwards.

NOTE: If the loader will be removed for an extended period of time, remove the lift link and store with the loader.

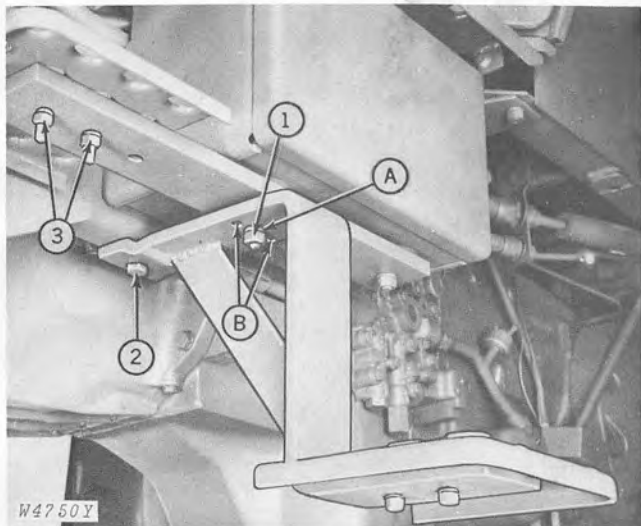


Attaching

PREPARING TRACTOR



IMPORTANT: Tighten tractor side frame mounting bolts to 275 ft-lbs torque.



Lower Tractor Step

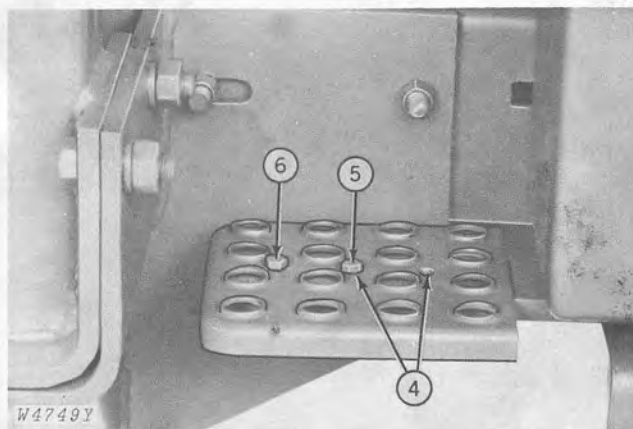
Remove lower step and drill 15/32-inch hole "A" centered between holes "B".

1. Remove carriage bolt from inside battery box and attach step to battery box and upper step support with carriage bolt, lock washer, and nut.

2. Attach step to side frame with cap screw previously removed.

3. Secure upper step to bracket with hardware previously removed.

Upper Tractor Step (148 Loader on 4030 Tractor only)



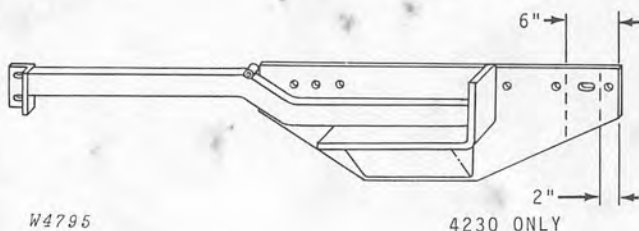
4. Remove step from bracket.

5. Move step toward battery box until holes line up and secure step to bracket with one cap screw, lock washer and nut previously removed.

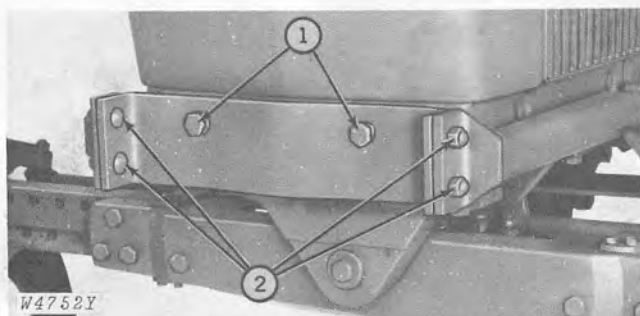
6. Using bracket as a template, drill hole in step and secure to bracket with cap screw, lock washer and nut previously removed.

INSTALLING LOADER MOUNTING BRACKETS

2520, 3020 AND 4030



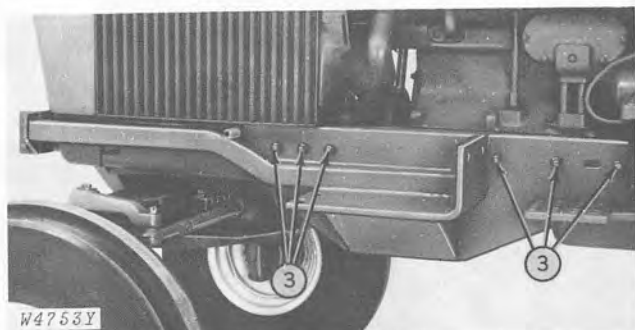
IMPORTANT: Certain tractors require that the mounting brackets be trimmed before they can be attached to the tractor side frames. If necessary, cut both side frames as shown in the illustration above.



1. Attach front bracket to tractor with two 3/4 x 2-1/2-inch cap screws and lock washers. Tighten to 350 ft-lbs torque.

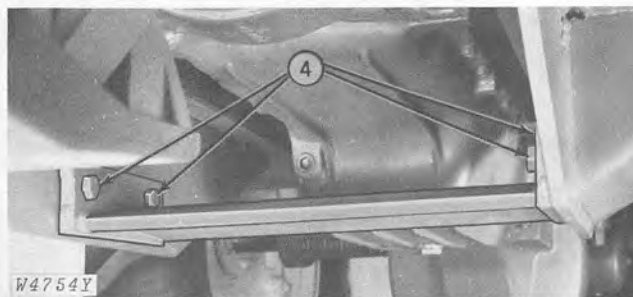
2. Attach side frames to front bracket with four 5/8 x 2-inch carriage bolts and lock nuts.

NOTE: If mounting stands are used, guide assemblies are required with step 2 above. See page 20.



3. Attach side mounting brackets to side frames with six 5/8 x 1-3/4-inch carriage bolts, special hardened washers and nuts.

NOTE: Early production models used internal-external tooth lock washers in place of special hardened washers.



4. Attach cross tie under tractor to each side frame with four 5/8 x 2-inch cap screws, lock washers and nuts.

Tighten all hardware to torque specified on page 25.

ATTACHING LOADER TO TRACTOR

The following instructions describe attaching the loader to the tractor using mounting stands. If the loader is not equipped with mounting stands, follow the same procedure using a chain hoist to lift and guide the loader.

Mounting stands should only be used to attach the loader to the tractor after the stands have been adjusted according to steps 1 to 6 under "Detaching" page 28.

To attach the loader to the tractor:

Swing the lift link rearward and lay it on the mounting bracket.



Specifications

TRACTORS

Mount 148 Loader on John Deere 2520, 3020, 4000, 4020, 4030, 4230, 4320 and 4430 Tractors

Mount 158 Loader on John Deere 4000, 4020, 4230, 4430, 4520, 4620 and 4630 Tractors

REQUIRED TRACTOR HYDRAULICS

Loader without Grapple Fork or Hay Stacker

For 148 and 158 Loader, tractor must have Dual Remote Cylinder Controls. If tractor is equipped with a single selective control valve, the loader must be operated by an independent control valve.

Loader with Grapple Fork or Hay Stacker

Tractor must have Triple Remote Cylinder Controls. If tractor is equipped with single or dual selective control valves, the loader must be operated by an independent control valve.

HYDRAULIC CYLINDERS

All cylinders are double-acting.

BUCKETS

60-Inch Manure Fork
60-Inch Materials
72-Inch Materials
84-Inch Materials
96-Inch Materials

WEIGHT

148 Loader with 60-Inch Materials Bucket: 1340 Pounds

158 Loader with 72-Inch Materials Bucket: 1760 Pounds

ASAE RATED BREAKAWAY CAPACITY AT GROUND LEVEL

148 Loader with 60-Inch Materials Bucket: 4700 Pounds

158 Loader with 72-Inch Materials Bucket: 5800 Pounds

ASAE RATED LIFT CAPACITY

148 Loader with 60-Inch Materials Bucket: 3100 Pounds

158 Loader with 72-Inch Materials Bucket: 3800 Pounds

EXTRA EQUIPMENT

Mounting Stands

Tines for 60, 72 and 84-Inch Materials Buckets

Extension for 60-Inch Materials Bucket

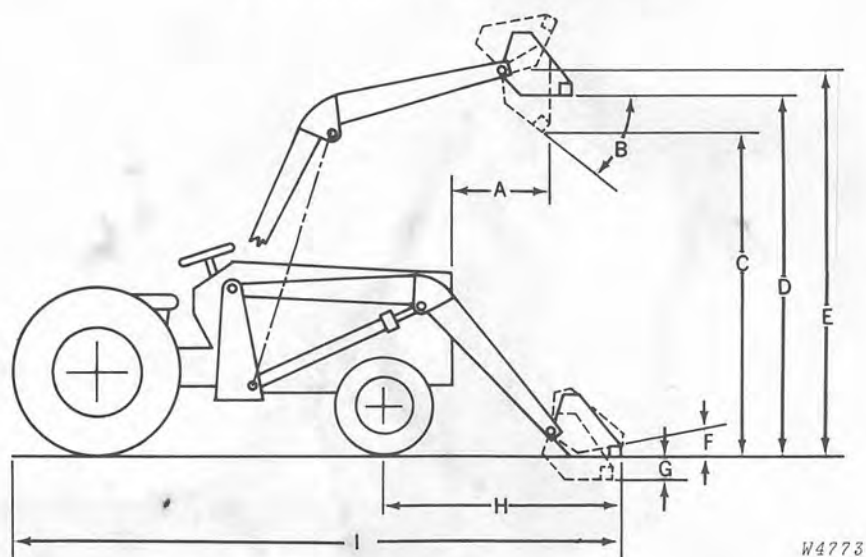
Side Cutting Edges for 60, 72, 84 and 96-Inch Materials Buckets

Grapple Fork

Hay Stacker

Bucket Level Indicator

OPERATING DIMENSIONS*



	148 Loader	158 Loader
A. Reach with bucket fully dumped	32 in.	32 in.
B. Bucket dump angle	38 deg.	37 deg.
C. Clearance with bucket fully dumped	102 in.	132 in.
D. Maximum lift height to bottom of level bucket	121 in.	151 in.
E. Maximum lift height to heel of bucket (ASAE)	126 in.	157 in.
F. Bucket roll-back angle (ASAE)	7 deg.	13 deg.
G. Digging depth (ASAE)	1.8 in.	5.3 in.
H. Front hub center line to front of bucket	69 in.	85 in.
I. Over-all length with bucket on ground	206 in.	225 in.

* NOTE: Operating dimensions vary with tractor, tire size, and bucket used. 148 Loader dimensions are given for a John Deere 4230 Tractor with 18.4 x 34 in. rear tires, 10.00 x 16 in. front tires, and a 60-inch material bucket without tines. 158 Loader dimensions are given for a John Deere 4430 Tractor with 20.8 x 34 in. rear tires, 11.00 x 16 in. front tire, and a 72-inch materials bucket without tines.

(Specifications and design subject to change without notice.)

JOHN DEERE 148 OR 158 FARM LOADER

Date Purchased..... 19.....

Serial Number.....

(To be filled in by Purchaser)

MEMORANDA

Service to keep you on the job

We, at your John Deere dealer's, pride ourselves in having what it takes to help keep you on the job... where the profits are

John Deere Parts.

We help minimize downtime by putting the right parts in your hands in a hurry. That's why we maintain a large and varied inventory—to stay a jump ahead of your needs.



The right tools.

Precision tools and testing equipment enable our Service Department to locate and correct troubles quickly... to save you time and money.



Well-trained mechanics.

School is never out for John Deere servicemen. Training schools are held regularly to be sure our personnel know your equipment and how to maintain it. Result? Experience you can count on!



Prompt service.

Our goal is to provide prompt, efficient care when you want it and where you want it. We can make repairs at your place or at ours, depending on the circumstances. See us. Depend on us.

John Deere Service Superiority: We'll be around when you need us

